# MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
*Washington, D. C., February* 29, 1868.

SIR: I respectfully submit for publication the accompanying matter for the February report, as follows: Beet-root Sugar, a letter from the Commissioner of Agriculture to Hon. S. M. Cullom, M. C.; Remission of Customs Duties on Living Animals, Plants and Seeds, in communications from the Commissioner of Agriculture to the Committee on Agriculture of the House of Representatives; Special Statistics of Farm Resources and Products, continued from the February number, embracing analyses of returns from the southern States; Horse-hoeing Wheat; Agriculture in Common Schools; Castor Oil Bean; Experiments with Farm Fertilizers; The Reports of Agriculture; Tables of Wool Imports for four months; Meteorology.

Respectfully,

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON,
*Commissioner of Agriculture.*

## BEET-ROOT SUGAR.

DEPARTMENT OF AGRICULTURE,
*Washington, D. C., February* 28, 1868.

SIR: I respond with pleasure to your request for a statement giving an outline of the leading facts of beet sugar production. As investigations of the subject are now in progress in this office, including original analyses of the beet at different periods of its growth, a complete history of the enterprise in this country, and a synopsis of European experience and its results, I will at this time only give a brief view of the importance and extent of the beet sugar business in its present status.

Without government encouragement at the outset it might not now be numbered among the industries which bless the world. When the first Bonaparte fostered the art of extracting sugar from this garden vegetable as a practical matter, the possibility of obtaining a good article had long previously been demonstrated by chemists; it only remained to be shown that the manufacture could be conducted with profit on a large scale. His object was to exclude from his empire the sugar of British colonies, the price of which was then four or five francs per pound. A prize of one million francs was offered by the French government for the most successful method of obtaining a supply of indigenous sugar. It was soon evident that such a supply must be furnished from the beet root.

In Poland, also, in 1812, government loans and exemption from conscription, in aid of the enterprise, were freely offered. In fact, the principal governments

of continental Europe vied with each other in perfecting and extending the new business.

A manufactory of beet sugar was in successful operation in Silesia as early as 1805; and in France repeated experiments were undertaken a few years later. Up to 1818 no very marked or rapid progress was made, though the business was constantly extending.

In 1839 the manufacture, already established upon a solid footing, embraced the operations of 268 factories in France, Germany, Sweden, and Russia. In 1848 France alone had 294; Prussia 346, and Russia 425. The present number of factories in France (according to De Neumann) is 449; many of them are far more extensive than those of former days, and fourteen of the number have been established during the past year. At the first of January, 1868, 3,173 refineries of beet-root sugar were reported as in operation in Europe.

The total product in 1828 is stated to have been 7,000 tons; in 1851, 180,000 tons; and in 1867 the enormous quantity of 663,000 tons, or 1,485,120,000 pounds, worth $100,000,000, or about seven cents per pound.

Sixteen years ago, France was able to manufacture half of her total consumption of sugar, or 60,000 tons; and Belgium, consuming 14,000 tons, imported, in 1851, but 4,000 tons. Germany, at the same date, produced 43,000 tons; Austria 15,000, and Russia 35,000 tons; the latter country also importing, at that time, 50,000 tons of sugar in addition to the home product. The total manufacture of Europe, as stated above, has been almost quadrupled since that date, and cane sugar in several of those states in now scarcely known.

The amount manufactured in France during the three months ending November 30, 1867, was 120,553 tons—18,613 more than was made in the same period of the previous year.

During the past year, 15,600 tons of raw beet sugar have been imported into London, yielding customs revenue to the amount of £159,883, or more than three quarters of a million of dollars. An English sugar refiner, who uses 300 tons of raw beet sugar per week, now offers eighteen shillings ($4 50) per ton for 6,000 tons of English sugar beet.

The product of beets per acre is from fourteen to fifteen tons in France and Belgium. Enormous crops have occasionally been reported. The English Gardener's Chronicle contains the statement of M. de Gasparin of twenty-seven tons seven hundred weight grown upon thirty-nine perches sixteen square yards, or nearly 110 tons per acre. He sowed the seed under glass, transplanted plants in April, hoed repeatedly, and irrigated every two weeks.

A ton of beets yields about 100 pounds of raw sugar. At first the proportion of sugar obtained was but three per cent. It was increased to six, and even to seven and a half per cent.

The beet cake for feeding purposes, the molasses, alchohol, and other products obtained greatly increase the aggregate which makes the total value of this branch of industry. Beet sugar districts become so enriched that far greater amounts of the cereals and other products of agriculture are obtained than before beet factories were known.

The growing of the beet requires rotation, as well as thorough culture and careful weeding. It would therefore be a boon of untold value to our wheat-producing districts of the west, which are decreasing year by year in returns for labor expended from these causes, and the additional neglect of stock growing.

A promising beginning in beet-sugar making has been commenced in Chatsworth, Illinois, and fine samples of its sugar may be seen in the museum of this department. A history of this enterprise will hereafter be given. It has, of course, met with difficulties, surrounded by new circumstances, with high rates of labor and interest on money, which will all, I have no doubt, be eventually overcome. Many individuals and companies stand ready to engage in the business when its success upon our soil is fully demonstrated. Then in the west,

as in Europe, flourishing towns and villages will spring up upon prairies that are now without population or improvement, and an impetus will be given to all other business by the successful manufacture of a raw product, taken from adjacent fields, involving the supply of an imperative want of every class of our people.

Another feature of the business is worthy of attention. The production of the sugar beet by farmers, for sale in a dried state to manufacturers of sugar, may be made to yield an immense revenue to rural industry. The beets are cut in small pieces, after washing, and dried by artificial heat, by which process from eighty to eighty-four per cent. of their weight is expelled, leaving a residue containing fifty-five per cent. or more of sugar, which is extracted by infusion, often after months of delay and transportation to distant factories. A specimen of this dried beet can be seen in this department, made by Thomas Gennert, of Chatsworth, Illinois, who claims about eighty per cent. of sugar in it. As an illustration of the extent of such a business, a record may be cited of an establishment for obtaining sugar by infusion of dried beet, at Waghausel, near Carlsruhe, in the duchy of Baden, in which 3,000 people were employed, a capital of eighty millions of francs (or sixteen million dollars) used, and twelve acres of land covered with buildings.

The large and increasing quantities of sugar and molasses required for consumption in this country, and the amount of money paid for foreign labor in its production, can be appreciated by a glance at the following statement of imports for five years, which is in addition to a small domestic product of cane, maple, and other sugars, and large quantities of sorghum sirups; a small amount, also, by indirect trade, is not included, on account of incompleteness in the official statement of imports:

| Year. | SUGAR. | | SIRUP AND MOLASSES. | |
|---|---|---|---|---|
| | Pounds. | Dollars. | Gallons. | Dollars |
| 1862 | 557,137,529 | 20,357,090 | 25,157,280 | 3,427,813 |
| 1863 | 518,594,861 | 19,082.017 | 31,206,986 | 4,732,378 |
| 1864 | 632,230,247 | 29,660,076 | 33,571,230 | 7,256,064 |
| 1865 | 608,855,989 | 25,242,299 | 43,309,003 | 7,471,467 |
| 1866 | 977,885,449 | 39,595,677 | 47,768,348 | 7,227,351 |

Here is a total of $133,943,159, gold value, paid for foreign sugar in five years, and $30,115,073 for the molasses, an average of about $33,000,000 per year, and more than $50,000,000 in currency, the most of which, if not all, should be retained at home. In view of the great success of the business in Europe, the American people owe to the world's estimate of American enterprise a determined and persistent effort for its establishment here. I see no reason to despair of its complete accomplishment. I shall therefore deem it a duty to encourage and forward this result so far as official means and opportunities may permit, and I would respectfully call the attention of Congress to the importance of practical investigations among the factories of Europe, tending to exhibit, especially, the comparative economy of processes of manufacture, and to show how the peculiar difficulties attending the experiment here may be overcome.

I am, very respectfully, your obedient servant,

HORACE CAPRON,
*Commissioner.*

Hon. S. M. CULLOM,
*Member of Congress.*

## FREE IMPORTATION OF ANIMALS, SEEDS, AND PLANTS.

The following letter to the congressional Committees on Agriculture asking the remission of duties which produce little or no revenue, and act only as a bar to agricultural progress, will meet with a hearty response from all progressive farmers:

SIR: I take occasion, in transmitting the accompanying memorial of the Tennessee Horticultural Society, for the remission of import duties upon agricultural seeds and bulbous roots, to ask the attention of Congress to the importance of removing, as far as practicable, all restrictions upon the importation of living plants, as well as living germs, (or seeds,) floral or agricultural, intended to promote the introduction of new varieties of useful or ornamental fruits, flowers, vegetables, or plants.

I would not ask the removal of one of these barriers, so far as they might relate to food supplies or raw products for manufacture, as in the case of linseed and other oil seeds imported for manufacture, and would avoid the least appearance of fostering injurious competition with a single branch of agricultural production, or of attempting to shirk the slightest burden of taxation; but the free admission of such seeds and plants as are intended for planting and propagation, with the especial design of increasing the variety of our agricultural and floral wealth, would neither affect injuriously the business of any producer, or reduce to any appreciable extent the revenue derived from customs.

The imports of foreign garden and agricultural seeds, seeds of flowering plants and bulbous roots, for several years past, have been as follows:

| | |
|---|---|
| 1863 | $9,169 |
| 1864 | 76,227 |
| 1865 | 42,216 |
| 1866 | 140,169 |

Thus in four years the total value of imports, of all these items, amounts to little more than a quarter of a million of dollars; yet the increased cost of importation, by reason of the customs duties charged, is sufficient to deter local societies, with no funds except the voluntary contributions of members or others, from the attempt to introduce new plants or seeds of rare varieties.

It is because this spirit of improvement needs stimulation rather than repression in this country, and not on account of the pecuniary trifle represented by the duty, that this concession is asked. It would be a governmental recognition of a spirit of progress in agriculture which would invite renewed efforts for the dissemination of new varieties and promising novelties, and thus confer a far greater boon than the mere remission of the duties now imposed.

I have the honor to be, very respectfully, yours, &c.,

HORACE CAPRON, *Commissioner.*

Hon. SCHUYLER COLFAX,
*Speaker of the House of Representatives.*

The Commissioner has also sent to the same committees a communication favoring the policy of admitting thorough-bred animals, for the improvement of farm stock, without duty. The twenty per cent. now imposed, while it produces little revenue, acts as a discouragement of importation. Agricultural societies and prominent stock-growers have urged the policy of such a concession to an awakening spirit of agricultural improvement. An improvement of twenty-five per cent. in weight and value of beeves, from the use of foreign thoroughbreds, is claimed; and an equal benefit from the importation of improved merinoes is conceded, while a larger infusion of the best mutton blood is now desired, and a finer variety of fine wool is needed.

The Commissioner closes as follows: "As an additional reason for such action at the present time, it should be stated that the Canadian government has remitted a similar duty in an order dated December 31, 1867. This, with the advantage in exchange enjoyed by the Canadian breeder, works a still greater injury to our own improvers of stock.

"In view of these and other considerations, I respectfully suggest the propriety of the early passage of a joint resolution of the following purport:

"*Be it enacted, &c.*, That horses, horned cattle, sheep, swine, and other animals, including poultry and birds, when imported by agricultural societies, or by private individuals for the improvement of stock, shall not be liable to the customs duty charged upon farm stock imported for other purposes."

## SPECIAL STATISTICS OF FARM RESOURCES AND PRODUCTS.

A continuation of the analysis of "special statistics of farm resources and products," which included the eastern and middle States in the last report, will embrace the southern States in this number, to be followed by a statement for the western States in the March issue. The following are the inquiries upon which the returns are founded:

1. What is the average percentage of increase (or decrease, if cases of decrease exist) in the price of farm lands in your county since 1860?
2. What is the average value of wild or unimproved tracts of land; and what is the character, quality, and capabilities of such land?
3. What marked or peculiar resources have you in soil, timber, or minerals; and what is the state of their development, or inducement for attempted development?
4. What crops, if any, are made a specialty in your county; and what facts illustrating their culture, quantity, and the profit derived?
5. What kinds of wheat are cultivated: and which of them are preferred; and why? What is the time of drilling or sowing? For harvesting? And what is the amount and mode of culture? What proportion is drilled?
6. What grasses are natural to your pastures? How many months can farm animals feed exclusively in pastures? What would be a fair estimate, per head, of the cost of a season's pasturage of an average herd of cattle?
7. What are the capabilities of your county for fruit? What fruits are best adapted to your soil and climate? Give some *facts* concerning yield and profit.

### MARYLAND.

1. Of the counties of this State from which returns have been received, Allegheny, in the extreme west, reports an advance of fifty per cent. in the value of farm lands as compared with the census estimates of 1860, and the adjoining county of Washington about thirty-three per cent.; Baltimore county reports an increase of thirty-five per cent., Montgomery, Cecil and Talbot about thirty per cent., Harford twenty per cent., Kent ten per cent., Queen Anne and Anne Arundel no advance, while St. Mary's shows a decline of about twenty-five per cent. Along the line of the Metropolitan branch of the Baltimore and Ohio railroad, in Montgomery county, lands have advanced twenty-five per cent. more than in other portions of the county, while the rich bottom lands along the Potomac have decreased in value from the difficulty in procuring labor to work them. In Queen Anne the prices are reported considerably lower than in 1864–'65.

2. The average price of wild or unimproved lands in the several counties named ranges from $1 to $65, according to location, resources, &c. In Washington county the waste lands are chiefly in the mountains. In Montgomery the average is from $10 to $20, with little inclination to sell; the lands are principally old fields, grown up in pine and sedge, but with a liberal application of fertilizers and labor are susceptible of high cultivation. Baltimore county contains a large area of unimproved lands, part forests, heavily timbered, part worn-out fields, but contiguity to the metropolis of the State is increasing their market value, and they are now selling at an average of $65 per acre. The unimproved land in Harford is chiefly wooded, and the average value is given at $40 per acre. Sedge fields may be purchased at about the same figure. Cecil reports an average of from $10 to $30, and Kent $10 per acre, most of the latter being low wet lands, studded in many instances with scrubby timber, but clearing and draining would render most of them valuable. In Queen Anne much of the waste land is rather swampy, but easily drained. The timber is principally sweet gum and white oak. There are some worn-out lands, but where the ground is high enough for fruit they can be made valuable at comparatively small expense. The average value is from $15 to $20. In Talbot the unimproved land has good red clay subsoil and sandy loam, easily improved,

worth now an average of $20 per acre. Anne Arundel reports an average of $35 per acre for such lands, being susceptible of improvement and capable of producing fruits and good quality of tobacco. In St. Mary's this class of land is chiefly timbered with a light growth of pine, sometimes oak and chestnut, and worth, remote from navigation, $10 per acre, and $20 near the water.

3. The soil of Maryland is various. In Frederick, Washington, and Cumberland, superior farms for wheat are found, and portions of the two former are highly cultivated and held at high prices. Some of these farms were worth $150 per acre before the war, and the real estate of these counties will to-day command nearly as much in gold as in 1860. The lands between the Chesapeake and Potomac are, in part, sandy loam, underlaid with marl near rivers, and in the Black Forest of Prince George's are black soils almost as rich in organic matter and as productive as the best prairie soils of the west. These lands are very cheap at $50, the price at which they have been offered. In Kent, a light loam prevails, inclining to sand, highly susceptible of improvement with lime and ashes. Queen Anne has a loam underlaid with red clay. Harford has sandy and clayey loams. The Eastern Shore is sandy but rich in marls, and very productive, with the use of shell lime, marl, and sea-weeds, all cheap and accessible. It is, perhaps, unsurpassed as a peach region. Timber is yet abundant, of nearly all kinds common to Pennsylvania and Virginia.

Minerals abound. In Montgomery is found gold, copper, iron, and chrome. Near Gaithersburg are beds of magnetic iron ore pronounced very rich by Professor Silliman. Iron is also reported in Baltimore, Harford, and Talbot, and furnaces are working in several counties.

In Cumberland, coal lands are worth from $25 to $5,000 per acre. The coal shipped in 1866 amounted to 835,939 tons—550,519 by the Baltimore and Ohio railroad, 285,420 by the Cumberland canal; and in 1867 to 939,917 tons—556,235 by railroad, and 381,682 by canal In this county "farming pays good profits, as the mining regions consume farm products," a practical truth which contains the germ of wealth, population, and high civilization for the mountain section of the South, unless a false system of political economy shall be permitted to seal up such resources for the use of future generations, and repress the advance of immigration, and convert these mountain glades into solitary sheep-walks for the production of wool that shall search in vain for an American market.

Our correspondent in Baltimore county says: "The timber is of good quality, oak, hickory, chestnut, and some locust. The timber is taken to Baltimore for building purposes, agricultural implements, machinery, freight cars, ship-building, and for many other purposes. The large beds of clay near Baltimore have always been celebrated for producing brick unequalled. This clay is also manufactured into stone and earthen ware. Brown hematite iron ore, magnetic oxide and carbonate of iron, are found in many parts of the county and smelted in several furnaces. Copper mines are worked to some extent. Extensive beds of chrome furnish most of the supply of the United States, and much of it is exported to Europe; these mines are valuable and supposed inexhaustible. Large quarries of fine building stone are extensively worked. Fine grained, white marble exists in unlimited quantities. This marble was used for the extension of the Capitol at Washington, and the alum marble of this county for the construction of the Patent Office at Washington."

4. In most of the counties a mixed husbandry prevails, the climate and soil being suited to the cultivation of the cereals, root crops, tobacco, fruit, &c. Sheep and the dairy receive considerable attention in Alleghany, and the products, with the general farm crops, find ready home market in the mining districts. Washington county makes a specialty of wheat, and no failure has occurred in the crop since 1837, though rust, &c., injures it occasionally. Corn,

oats, rye, and hay do well, but our reporter says: "Our farmers have long practiced the skimming system of farming." In the northwestern part of Montgomery county a fine quality of tobacco is raised, claimed to be equal to any in the State, the planters selling from $200 to $250 from an acre. Our correspondent in this county says: "When the land is well manured and cultivated it yields from forty to sixty bushels of corn per acre, from one hundred to three hundred bushels of potatoes, fifteen to twenty bushels of wheat, thirty to fifty bushels of oats, and from one and one-half to three tons of hay to the acre, but the average is much below these figures." The corn crop is made a specialty in Baltimore county, the aggregate yield of 1860 being over one million bushels, and the crop of 1867 about 1,240,000 bushels. The grain is taken to Baltimore and much of it exported, this disposition of the crop being considered more remunerative than feeding it to stock. Large profits are derived from this crop, the soil being well adapted to its growth. Mode of culture: the ground is ploughed either in the fall or spring, and put in good order, the rows laid off two ways, about three and one-half feet apart, and the corn worked well both ways. Planting begins about the 1st of May. It is usual to thin out the stalks and leave but two to the hill."

From Queen Anne county our reporter writes: "Our principal crops are corn, wheat, and fruit. I have been in this county since 1851, and I can safely say that, by the use of lime, phosphates, and guano, with clover rotations, the grain crop has been more than doubled, while the growth of fruit, which has originated only within the last six or eight years, promises, from its remarkable success, to be our principal pursuit. With existing and prospective railroad facilities our peaches will be in the New York market the day after they are picked. Well-improved lands yield from forty to sixty bushels of corn to the acre, and it is our most profitable grain crop. Of wheat twenty bushels in fallow with clover lea, and twelve on corn ground, drilled in with superphosphate. Some of our stiffer lands will bring more wheat, but are not so well adapted to corn or fruit."

In Anne Arundel county fruit and market gardening, especially strawberries, command much attention, the latter crop having been increased ten-fold in as many years, and nearly doubled in the last year, paying a net profit of from $100 to $400 per acre.

Tobacco is considered the most profitable crop in St. Mary's county, though wheat and corn are largely cultivated. The production of wheat appears to be declining, and failures are frequent with the more careless farmers. Our reporter adds, however, that his neighbor, "one of the best farmers in the county, who ploughs deep and manures well, is uniformly successful, having had but one failure in ten or twelve years, a circumstance which ought to modify the general practice hereabouts."

5. Winter wheat alone is cultivated in Maryland, of which the varieties sown are numerous, including red and white Mediterranean, Tappahannock, German Black, or Lancaster, Blue Stem, Purple Stem, Columbia, Walker, White Flint, Red Chaff, &c., but the red Mediterranean is generally preferred for its hardiness, early ripening, and resistance to midge, rust, and other diseases. In Washington county the "Lancaster" improvement on the Mediterranean is now in high favor and largely sown; but a change of seed is found necessary every few years, to insure success. The Tappahannock and Mediterranean are sown in Montgomery, the latter yielding more, but the former commanding higher price. In most of the other counties reporting the red Mediterranean is almost exclusively sown, as the surest and most profitable variety, a number of the other kinds grown having become unreliable.

The seed is sown in the different sections of the State from the middle of September to the middle of October, and the crop harvested the latter part of June and the first week in July. It is estimated that about two-thirds of the

acreage is drilled, the broadcast system being generally superseded. The mode and amount of culture vary in the different counties.

In Washington, clover fallow is preferred for wheat. The ground is prepared by ploughing with a three-horse plough, thorough harrowing, and seeding with drill, $1\frac{3}{4}$ bushels to the acre. Montgomery gives the average yield at about 12 bushels. Our Baltimore correspondent writes: "The amount of wheat cultivated is yearly on the increase, the crop of 1867 probably aggregating 320,000 bushels. A much better system prevails at present in the mode of culture—more manures are used, and the drill is of great importance. In some localities the drill is used altogether." In Cecil "wheat is mostly sown in oat stubble, after one or two ploughings, manured with ground bones, guano, or superphosphate of lime, and as much barnyard manure as is available." In Kent, "clover sod, turned down early in the fall, is drilled in, and wheat and oat stubble flushed and drilled, with guano and concentrated fertilizers; corn, ground, broadcast and ploughed in or drilled in, without other preparation." In Queen Anne, "for fallow we plough down a clover lea, harrow, and roll until the ground is in order, and then seed with drill from $1\frac{1}{2}$ to $1\frac{3}{4}$ bushels per acre."

6. In the western part of Alleghany "natural prairie grass abounds; the pastures are usually timothy, blue grass, and clover." In Washington, "grasses are rich in fattening qualities; clover, lucerne, and orchard grass flourish; two to three tons of timothy may be raised to the acre." "Clover, timothy, and herd-grass or red-top form the pastures in Montgomery, but unless a rotation of crops is practiced, or the fields top-dressed, briers, sedge, and the ox-eye daisy or Richardson pink obtain possession; blue-grass is found in some pastures where the soil is good." Baltimore county "is not well supplied with natural grasses of good quality; in some localities red-top and blue-grass abound, and in many sections inferior grasses, called wild grasses, are found." Grass seeds are generally sown in Harford, but "green grass" and clover come spontaneously. White clover, green grass, and herds-grass are found in Cecil, and on low lands along the streams, a variety of meadow grasses; lands lying out are occupied by a coarse kind of grass called sedge. Clover and timothy are almost exclusively cultivated. Our Queen Anne reporter writes: "On well-improved lands patches of blue-grass root out the clover, and if let alone would soon take entire possession of the field, but is eradicated by a corn crop. Our meadow lands naturally produce red-top, wild oats, and a variety of coarse but succulent grasses, of which I do not know the names. Our worn-out lands grow up in sedge, which supplies good early pasture." Our reporter in Anne Arundel county says, "natural grasses are almost unknown here; crab grass and woolly head clover often grow, but are not adequate for pasturage. The soil is well adapted to clover and timothy, producing heavy crops when improved."

Reports from the several counties estimate the average length of the pasturage season at about seven months, at an expense of from $1 50 to $3 per month; Montgomery, six to six and a half months, at $1 50 per month; Baltimore is returned as low as four and a half months, at about $1 50 per month; Cecil, six and a half months, at $2; Kent, seven months, at $3; St. Mary's, Anne Arundel, and Queen Anne, report as high as eight months. From the latter our correspondent writes: "Where a farmer has plenty of wood-land, meadow, and old field pasture, it costs him nothing to raise cattle, as they are not put upon clover until a crop has been cut off or it begins to fall, and they are wintered on coarse provender which they convert into manure."

7. The soil and climate of Maryland are well adapted to the cultivation of fruits, and their growth is becoming an important interest in sections adjacent to the city markets, or in railroad communication therewith. Washington and Alleghany counties are considered especially adapted to the production of apples, peaches, &c., but as yet the culture has received comparatively little attention in the western part of the State. In Montgomery, both apples and peaches

yield well, and from proximity to Washington markets return large profits to the producer. Our correspondent writes that from one peach orchard $1,000 was realized in one season, and from an apple orchard of four acres $800 worth of fruit was sold in one year.

In Baltimore county the apple crop is the principal fruit crop, and the most profitable; the peach is also remunerative, but not reliable. The Baltimore markets present great inducements to fruit-growers. Grape culture is attracting attention in this county, and it is claimed that its success has been satisfactorily demonstrated. Harford county reports unfavorably in reference to large fruits, but success in berry culture. Cecil—"Apples do not yield well; pears do better. Peaches are raised in large quantities in the southern part of the county, but they are subject to failure from unfavorable weather changes. A full crop is valuable, however. A neighbor realized $1,000 from about eight acres. Small fruits are beginning to be raised for market." In Kent county most fruits adapted to the latitude do well; peach trees averaging $5 per tree, and apples $10. This has been a great peach district for ten or twelve years.

From Talbot county our reporter writes: "The capabilities of this county for fruit-growing are great, particularly for the grape, which is found all over our woods ascending the tallest trees. Little attention has been paid to fruit culture, but from the location of our county, with prospect of early direct communication with Baltimore, Philadelphia, and New York, strong inducements are held out to fruit growers." Our Queen Anne reporter says: "No soil or climate is better adapted to fruit, and for three or four years previous to the last one, peach growers averaged a clear profit of $100 per acre on their fruit. The crop last season was much injured by rot, caused by excessive wet weather. Pears are proving even more valuable than peaches, and many orchards of standard trees have been planted. Those who have tried dwarf pears have partially failed, because they planted too many varieties. Only the Louis Bonne de Jersey and Duchess d'Angouleme have succeeded well; but these have yielded enormous profits. Of the standard, the Bartlett is worth all the rest. Apples have not been so profitable. Our old winter varieties seem to have run out, while the northern winter apples ripen here in the fall. Summer and fall varieties bear abundantly, and when the railroad gives us a market in Philadelphia and New York I think we shall find them profitable. A new fall apple from Pennsylvania, called the Smoke House, proves a great bearer and very superior fruit with us."

## VIRGINIA.

1. Two-thirds of the counties report a decrease in the value of land since 1860, ranging from ten to sixty per cent., and averaging thirty-five; the remainder, with two or three exceptions, make the present price in currency no greater than the valuation in 1860. An average decrease for the entire State may be placed at twenty-seven per cent. This makes the depreciation, in comparison with the date of the last census, about the same percentage as the appreciation which was reported in New York—that is, property worth $100 in 1860 is now valued at $73 in Virginia, and $128 in New York. Yet this reduction is more apparent than real; at least it is not permanent, and is far less marked to-day than it was a year ago. Very few sales were made at prevailing prices; yet such has been the dearth of money, and almost everything except land, that more frequent sales—apparent sacrifices—would have been better for the people. Those who are able to hold their land, and many who are not, refuse to sell at less than former prices; still there are thousands of farms or uncultivated tracts of land that can now be bought for less than their intrinsic worth; and there are opportunities, at forced sales or under stress of immediate want, to obtain valuable

property for a trifling consideration. In a portion of Loudon, especially the Potomac and Loudon valley, and Clarke county, adjoining, prices are already higher, in consequence of northern immigration, than in 1860; and such will be the result throughout the State when farms are subdivided and occupied by an enterprising people.

The causes of depreciation assigned are numerous: first of all is the want of labor which is universally noticed; the lack of capital; the large amount of land offered for sale to reduce the size of farms; State enactments forbidding a higher rate of interest than six per cent., tending to drive capital to cities and out of the State; the stay law; neglect of agriculture; and, finally, reconstruction not in accordance with the judgment or prejudices of reporters. In many sections there is a prevalent disposition to sell all surplus area of farms above 100 to 200 acres.

Advance in price is noticed in many counties. In Middlesex, on the Rappahannock, land that could have been purchased two years ago for $10 will now command $30. In Pulaski, in the southwest part of the State, while the decline, as shown by the few sales made, is sixty per cent., holders generally are not disposed to sell at less than former rates. This is the fact to a great extent throughout the State, and it gives a wide range to prices, and makes an estimate of an average a very difficult undertaking. The prices are made by the necessities of the sellers.

In 1860 a portion of the Shenandoah valley, a part of the eastern slope of the Blue Ridge, the James river region, and some other sections, were cultivated, improved, highly valued and prosperous. Jefferson county averaged $52 per acre, by the official assessment, and probably $80 by real valuation, while the average assesed value of Ohio farms was but $26. Loudon, with 220,266 acres improved and 75,876 unimproved, was valued at $10,508,211. Mountainous sections, the upper portion of the valley of Virginia, the tide-water region, and the western slopes of the Alleghanies, were less valuable, ranging from $5 to $30, and much higher with valuable improvements, according to location and all the various circumstances which usually affect prices. Farms at $100 per acre, and even $150, were often purchased, and the same prices will soon be reached when losses of population and property have been repaired.

2. Such has been the waste of war that "unimproved" lands have encroached upon cultivated areas until nearly all the State is "wild" land. The tracts in original forest, or thrown out of cultivation and covered with new forest growths, will be included in this branch of the subject. In Patrick and other southwestern counties the price is quoted at $1; in Carroll, fifty cents; in Nelson, twenty-five cents; in Botetourt, $1 to $3; in Tazewell, $2 50; in Highland, $2 75; in Clarke, $3 to $6; in Washington, $2 to $3; in Buckingham, $2 to $5; in King George, $4 to $10; in Stafford, King William, Norfolk and Craig, $5; in York and Middlesex, $6; in Lancaster, $5 to $25; in Smyth, $10 to $25. This shows the range of reports. In the tidewater counties prices range from $5 to $15 for wild lands, except on navigable water, where the value depends on the amount of wood and timber, sometimes reaching $50.

Lands at $1 per acre in Patrick are reported "mountainous, heavily timbered, and highly productive." Coal lands, four miles from the railroad, in Montgomery, can be bought for $3 to $5 per acre, and for $1 to $2 ten miles from the railroad. Mines of great intrinsic value in several counties in this part of the State, are unworked and unopened for want of capital, enterprise and knowledge of the business of mining. In Wythe wild lands are "almost valueless except in the neighborhood of iron works," one of a class of facts everywhere appearing in Virginia, which illustrate the creation of values in all of a group of products by utilizing one of them. In Tazewell are tracts of thousands of acres, some of them at lower prices than government lands. On these mountain slopes and in valleys the pasturage is unsurpassed in the country, and much

of it is excellent land for tobacco, grapes, and fruit. Among the mountains are also rough and rocky areas, of little value, except for minerals, in which this county is peculiarly rich. The reporter says of its soil and timber growth: "The greatest source of wealth in this county is from blue-grass. Large portions are used entirely for grazing purposes, as after the timber is deadened and cleared of the undergrowth, the blue-grass springs up at once without sowing or breaking the surface of the soil. It becomes better by use, and if not too closely pastured soon forms a sod that nothing but the stoutest team and most improved plough can break. Formerly a large quantity of sugar was manufactured from the sugar maple. This from various causes has declined, the two principal reasons being the destruction of the trees, and the labor devoted to its manufacture having to be performed in the early portion of the spring, that should be devoted to preparing for the summer crops. The sugar maple is fast disappearing. Formerly it predominated. It is the best indication of blue-grass, to which it is rapidly giving way, and is now only found, to any extent, on steep mountain sides, or in groves specially reserved and called "sugar orchards." We have the usual variety of the oaks indigenous to this climate. White and black walnut, chestnut, buckeye, beach, &c., in their proper locations. Timber is only valuable for building and fencing purposes, as there is no transportation for sending it to market." In King William, on the Pamunkey and Mattapony, are lands subject to overflow, obtainable at $5 per acre, "consisting of both forests heavily timbered and high woody flats, having the most luxuriant vegetation, and furnishing the finest pasturage for cattle and hogs. As the greater portion of this land is alluvial, rich, loamy soil, its capabilities would be very great if made available by dykes and canals, which would be easily practicable."

The wild lands of the Blue Ridge are exceedingly desirable, from their climate, soil and location, with reference to markets. They can now be obtained for one-fourth to one-half the price of improved farms. The growths are oaks of several varieties, chestnut, hickory, dogwood, poplar, &c.

A fair indication of the quality of the tide-water lands may be obtained from the following concerning King George county: "A large proportion is of good quality, covered with a good growth of oak, hickory, locust, cedar, pine, &c. Where underlaid with marl, as in the western section, though hilly, it is fertile, easily tilled, and produces finely natural and cultivated grasses. The same, to a less degree, may be said of the unimproved lands in other parts of the county. All are susceptible of high improvement by the use of marl, lime, clover, plaster," &c. Of wild lands in Amelia, held at a nominal price, it is said: "Their capabilities for improvement are excellent, and at small cost they might be made to produce corn, wheat, oats, and tobacco. To get them in the road to self-improvement requires the capital to purchase grass-seed, and 250 pounds of guano to the acre, to start this vegetation, to make them self-sustaining, and improve the land, by green manuring, to a high degree of productiveness." In Buckingham: "There are large bodies of wild or uncultivated lands, varying in price from two to five dollars per acre, according to their proximity to market facilities. These lands lie well, and abound in oak and pine timber, and are well watered by small streams The soil is generally gray, soft, and lively, and, when cleared and brought into cultivation, is susceptible of the highest improvement, producing all the crops common to this latitude."

3. The wood and timber of Virginia cover a large portion of her area. Much of the eastern and central forests have been culled, and large areas of arable land have grown up in pine and other growths; yet there still remains, even on the navigable waters, which are estimated to have a coast line of fifteen hundred miles, a large amount of timber suitable for ship-building, cooperage, and various manufacturing purposes. On the Blue Ridge, within a few miles of the Orange and Alexandria railroad, are some forests of original growth, which are never utilized, but deadened, and left to decay, when the soil is wanted

for the purposes of agriculture. They are too far from the road to pay for hauling; but for manufacture upon the spot, into a thousand useful forms of domestic or farm utensils, they would prove a source of wealth. In Middlesex: "The Dragon swamp, which divides this from Gloucester county, is a vast belt of cypress timber, extending nearly thirty miles, with an average width of one-half mile. Very little effort has been made for the development of this vast source of wealth. At the head of navigable water, no enterprise offers a better investment for capital."

It is scarcely necessary to refer to the mineral wealth of Virginia. To mention even the names of the counties, in connection with the several minerals discovered within their boundaries, would occupy the allotted space. The whole valley of Virginia, for instance, is full of iron, various ores of which are so common that they have been used for making walls instead of fencing. From Botetourt, through Roanoke, Montgomery, Pulaski, Wythe, Smyth, Carroll, and Washington, to the southwest corner of the State, iron, of fine quality, is found in great abundance. It has been practically and successfully tested, for many years, at a few points. Several furnaces are now in operation in Wythe and other counties, and more are in contemplation. In Pulaski is found "iron-ore in great abundance of the finest quality. There has been, until recently, no effort to develope it. A company from Pennsylvania have purchased several tracts, and are now building houses, with a view to commencing operations in the spring. They have purchased very low, and I have understood the property, if located in Pennsylvania, would command several millions." Since the war, a company from Connecticut has purchased a property in Carroll, and have erected a smelting furnace costing some $100,000, and will shortly commence working it. They have raised a large amount of ore, said to be very rich.

The Bath furnace property, in the Shenandoah valley, with several thousand acres of wood-lands in the vicinity, is offered, under compulsory circumstances, for a short time, at a price nearly nominal; and there are other iron-bearing tracts of, perhaps, equal cheapness. But this condition of things is now rapidly disappearing, and prices are advancing as the pressure of adverse circumstances is removed.

Gold is found in Stafford and other counties, and has been worked to advantage at various points. Copper is seen in the mountains of the Blue Ridge, and is abundant in the upper portion of the valley of Virginia, and is mentioned particularly in Louisa and Smyth. Coal is found in all the southwestern counties. In Pulaski, as is claimed, the coal beds underlie 100,000 acres. Lead has been discovered in Wythe, Smyth, and other counties; zinc in the same counties; and plumbago in Smyth. Salt is abundant in Washington, Smyth, and other southwestern counties. Barytes is reported in Smyth and Montgomery. Gypsum, slate, marls, ochres, kaolin, pipe and fine clay, limestone, and serpentine, are very abundant in many sections. The minerals of Virginia will soon be a source of wealth to individuals and the nation.

4. There are few specialties in Virginia agriculture, except tobacco and wheat, and stock growing in mountainous regions. The scarcity of money, and despondency, caused either by defeat in the late war, or from losses sustained in it, have operated to depress enterprise. A correspondent expresses the general feeling thus: "There is not energy enough among our farmers or laboring classes to make a specialty of anything, except to get bacon and corn-dodgers enough to drive starvation from their doors. Stock is about the only resource upon which we depend for what little money we require. Farms are large, averaging from 500 to 3,000 acres, and we hold on to them with a death grip, as if our interest in Heaven depended upon our broad acres, and will not cultivate it ourselves nor allow others to do so." This is the case, to some extent; yet the evidence is abundant of a growing disposition to sell, to invite immigra-

ion, to welcome business men and farmers, and even to take hold with energy, nd push new enterprises to success. Wheat, dry and heavy, yielding superior lour, may be considered a specialty in the Shenandoah valley, and in many of he central and eastern counties. Corn, for cattle feeding, has been produced argely on the north branch of the Potomac, in the valley of Virginia, and it as been a prominent crop in Norfolk, Gloucester, York, and Lancaster, on tide-water. Our correspondent on York river illustrates the capabilities of this coast region as follows: "One hundred and ten bushels of corn, forty of wheat, and sixty-four of oats, have been made to the acre. The oats were grown and harvested by myself, on light black land, never manured, and was the second crop of small grain, and the sixth of its cultivation. The other two parcels of land, on which the corn and wheat grew, were heavily manured. The profit was large in each case."

5. Expressions of preference for Tappahannock wheat are received from Greene, Washington, Wythe, Craig, Louisa, and Clarke. The Lancaster is preferred in Loudon, Botetourt, and Highland; the Oregon, because of its white, plump grain, in Lancaster; the Walker white in Scott, and, until recently, in Wythe, where it was introduced thirty years ago from Tennessee, and became very popular; the red-chaff Mediterranean in Montgomery, and the Mediterranean varieties in several other counties.

The time of sowing has a wide range; generally through September, and a part or the whole of October, and on the sea-coast to December first. In Pulaski county, the range is through October and November; in Carroll, from August 15th to November 1st. The commencement of sowing, in most of the counties, is during the latter half of September; and the close, upon an average, is from October 15th to 20th. The average for the date of commencing the harvest is June 21st, for the tide-water region, and June 25th for the whole State. The harvest, in most localities, is continued to July, but rarely extends beyond the first week, though sometimes continuing to July 10th, and, in some cases, to July 15th. Late sowing is often practiced to suit the time of corn-ripening, the corn being cut and the wheat harrowed in. In Wythe, the first half of September is preferred for sowing, "as the wheat gets a better root, is not so liable to be winter-killed, or to rust the next year." In Clarke, "either the Lancaster or Mediterranean, sown upon a dry soil, and drought prevailing, with warm weather, are liable to destruction by the fly; but, if sown upon a damp soil, in moist weather, escape the ravages of the fly." The modes of culture are various, and, like those of other parts of the country, generally careless and imperfect. In most of the counties a very small portion is drilled. In a few "valley counties" the drill is considerably used. In Craig it is common to turn over sod-land with a two-horse plough, then put in wheat with a shovel-plough, or harrow, and sometimes both;" and, in corn-land, to sow *while the corn is standing*. In Lancaster county, "many farmers cut off the corn, and sow upon the same land, but the greater number, and the best farmers, sow upon fallow." In Greene it is put in with the single and double-shovel plough, the harrow, or double-cultivator.

6. Blue-grass, white clover, crab-grass, and red-top, everywhere abound for the pasturage of cattle. The average length of the season for exclusive feeding is nearly eight months, and in mild seasons, in some localities, cattle obtain a subsistence without feeding throughout the year. Provision should be made, however, as it will be by good farmers, for a partial supply for four months or more. Far less hay or other feeding material is required, during this period, than for the same months in more northern latitudes. The price of pasturage varies greatly, ranging from $3 to $16 for the season, according to location and other circumstances. The average is less than a dollar per month. It is high in the neighborhood of Winchester, where lands are high, and grazing is not the principal business; and low on the mountain slopes of the Blue Ridge and the Allegha-

nies. The winter grazing is often good where the summer grass is not pastur till late in the fall. The following statement of the value of Virginia for grazi is entirely reliable: "The advantages of the valley and mountain glades Virginia for stock-rearing are remarkable. The census proves that many county, with large herds, has averaged less than a hundred-weight of hay each head of cattle! Winter feeding is required but for half the period nece sary in New England and New York, and less food suffices during that time, reason of the mildness of the climate. Beef or mutton can be produced at le than half the cost of northern-grown meat, and cheese made at a saving whi would more than double northern profits. Already have cheese factories bee started, with flattering success. In a recent address before the Border Agr cultural Society of Virginia and North Carolina, F. G. Ruffin says he has mad the present year, 180 per cent. profit on a flock of 200 sheep. Fortunes awa enterprises in every branch of stock production."

7. Reports from every county, without exception, are extremely favorable to capabilities for fruit of nearly all kinds known in the temperate zon Apples, pears, peaches, plums, apricots, and small fruits of all sorts, gro well in nearly all parts of the State. The only general exception, as to profi able yield, is the plum, which is destroyed by the curculio, as elsewhere. In few localities in the upper part of "the valley," frost is mentioned as an occa sional drawback in peach cultivation. Pears are generally of vigorous growt and productive habit. With few exceptions, in localities near Washingtor Richmond, and Norfolk, fruit-growing has never been engaged in as a busines and the fruit-trees upon farms, which have in many cases been numerous and i great variety, have rarely been cultivated or cared for, and seldom has the fru been marketed, except when dried or distilled. There is a general dispositio now prevalent to utilize and extend the production, as one of the surest an most speedy means of increasing the wealth and prosperity of the State. correspondent in Clarke county says: "The soil of the valley of Virginia throughout its whole extent, is admirably adapted to the growth of the appl and pear, but more especially the apple; the tree grows large and bears abun dantly. The apple has not been cultivated heretofore with a view to market but I think will be hereafter. The truth is that apple-orchards have not bee considered property. The peach is a very uncertain fruit, rarely producing re munerative crops oftener than once in three or four years, the trees not living more than seven or eight years. When the season is favorable, they grow abundantly. Improved plums are largely cultivated, but scarcely ever pro duce a crop. Cherries are grown considerably, and are a very certain crop. The strawberry, raspberry, and blackberry are produced in great abun dance, the latter two growing wild in every uncultivated piece of ground. Grapes are only grown as garden fruit, and not in regular vineyards; they are very certain to bear. The apple crop in this county was very large this year, and was sold for fifty cents per bushel, and sent to Baltimore." The average yield of a well-cultivated, full-grown apple tree, in Loudon county, is placed at eight bushels. Large quantities of apple-butter and apple-brandy are reported from Craig. In Scott, "peaches and apples have almost been the staple of the county." Botetourt "is capable of producing, and does produce, vast quantities of fruit, in great perfection, and can be made, with proper culture, one of the finest fruit-growing counties on the continent." In Montgomery, the reporter says, are lands at a very low price, that would yield great profits in grape culture, or any variety of fruit production. There are similar lands in almost every county in the State. The slopes of the Blue Ridge afford not only a suitable aspect, in a very favorable climate, for development of rich grape juices, but soils admirably adapted, in geological composition, texture, and drainage facilities, for vineyards, especially with reference to the production of wine. Eminent pomologists are persuaded that the Blue Ridge, from Virginia

outh, is the region for wine production east of the Alleghanies. Its capabilities ave been fully tested. Its soil is various, but productive, and easily improved. Much of it is of a reddish color, overlying a deep red, tenacious, clayey subsoil, susceptible of the highest improvement. There is a vineyard near the summit f the Blue Ridge which produced last season 6,000 gallons of wine, and 4,000 allons of brandy. A farmer, in another location, from the wild grapes picked rom his own acres, made 7,000 gallons of brandy, during one of the years of he late war. In Nelson, our correspondent says, "the soil is rich, and judging rom the size and quantity of the wild grape-vines indigenous to our soil, is well dapted to grape culture. We have no vineyards, but the wild grape grows pontaneously, in our fields and forests, to a large size, climbing to the tops of he tallest timber."

Eastern Virginia offers superior inducements for fruit-growing, not only in oil and climate, but particularly in facilities for freighting to northern markets y water. Numerous instances of profit might be noted. A lady near Norfolk eceived ten thousand dollars last season from thirty acres of pears. A entleman in the same locality sold apples from an orchard of eighteen acres for hree thousand dollars; and in Princess Anne county, an orchard set out three ears yielded four hundred and four dollars. Northern fruit-growers have al-eady commenced operations upon these promising fruit lands in different sections f the State.

### NORTH CAROLINA.

1. Reports from forty-one counties represent a very general decrease in values f real estate. Madison and McDowell report no decrease from prices of 1860, vhile the latter shows an actual increase on those of 1866. Onslow reports no ecrease on well-improved farms, but all others estimate a decline varying rom five to seventy-five per cent., and even more, especially at forced sales. As general rule small and improved farms have decreased less than large and eglected ones. The general average may be fairly rated at about fifty per ent. The causes are variously stated, as war, change in system of labor, carcity of money, unsettled state of public affairs, and the unrest of doubts egarding the future.

2. Wild or unimproved lands are reported in three general classes: first, ands exhausted, abandoned, and grown up to bushes; second, virgin uplands, enerally well timbered; and third, low or swamp lands, ("pocosin,") often vell timbered. The first, once fertile, can again be restored in time, and by good nanagement; the second generally requires only clearing and tillage; and the hird needs drainage in addition. The second and third can be had at prices arying from fifty cents to ten dollars per acre; the first at even lower rates. Pitch and turpentine lands abound in Duplin, Lincoln, Cabarras, Hertford, Sampson, Onslow, and Moore counties, and can be had for from two dollars to ive dollars, according to quality and facilities for working and marketing.

"Pocosin" or swamp lands are reported in quantities in Duplin, Onslow, and a few other counties; in the latter, one body of "white-oak pocosin" of sixty housand acres, extending into several adjacent counties, and other tracts nearly as large, requiring combined capital to drain. Another says of these, "the prices are from two dollars to three dollars per acre, and clearing and draining will cost as much more. They are among the most fertile lands when brought into cul-ivation." Macon county has thousands of acres at State price, (twelve and a half cents per acre,) large tracts of which are held by speculators at higher rates. Wilkes reports ridge or rolling lands with branch bottoms, one hundred acre farms one-fourth cleared, cabin, running water, plenty of wood, at two dol-ars per acre; mountain lands well wooded, generally fertile, and water-power too abundant to be appreciated, at one dollar per acre; Camden county virgin for-

est five dollars, and virgin swamp one dollar per acre; Jackson county mountain lands, rich and loose in quality, much of it stony, averages fifty cents per acre; Caldwell county, all timbered and water power abundant, level lands one dollar and mountain fifty cents per acre; Bertis county is three-fourths timbered upland, formerly held at five dollars—bottom lands higher in price. Lands generally of good quality and capable of high improvement in Duplin, Bertis, Halifax, Hertford, Onslow, Wilkes, Wilson, Macon, and Davie counties offered low; greater part of these suitable for cereals and vegetables, fruits of various kinds—some for cotton and tobacco, and a small part for rice.

3. Among the resources that could easily be made available and profitable in prosperous times, and with a few facilities in marketing, are yellow and pitch pine in abundance, formerly profitable for turpentine and lumber, in Duplin, Onslow, Wake, and other counties; timber of various kinds suitable for building, furniture, &c., in Bertis, Anson, Hertford, Onslow, Sampson, Iredell, Madison, Henderson, Montgomery, Moore, Stokes, and Burke counties; and agricultural resources in marketable products, with a good system of farming, in all except, perhaps, Northampton and Cumberland. Besides these, iron is manufactured in Chatham, Lincoln, and Gaston counties, and found in Randolph, Mecklenburg, Alleghany, Madison, Moore, Davie, and Guilford counties. Gold, silver, and copper are found in Davidson; gold in Stanley, Randolph, Cabarras (the centre of the gold region,) Lincoln, Anson, Mecklenburg, (which is rich also in zinc, sulphur, copperas, and blue vitriol,) Iredell, Rowan, Franklin, Gaston, Caldwell, Moore, McDowell, Rutherford, Guilford, and Burke; copper in Iredell, Rowan, Alleghany, Jackson and Guilford; bituminous coal in Chatham and Moore, and plumbago in Wake. In most of the counties, however, railroad or other facilities for marketing will be required to make these resources profitable, and at present, even in the best locations, capital, skill, and enterprise are needed.

4. Cotton has heretofore been a principal, and in many cases the only sale crop in Duplin, Bertis, Northampton, Halifax, Anson, Cabarras, Mecklenburg, Franklin, Wilson, and Wake counties; but the disturbances in labor and fall in price have rendered it precarious, if not utterly unprofitable. Wheat is a principal and generally profitable crop in Cabarras, Mecklenburg, Randolph, Camden, Polk, Gaston, Caldwell, Moore, Guilford, and Burke; and corn in Duplin, Randolph, Halifax, Onslow, Sampson, Camden, Polk, Gaston, Henderson, Caldwell, Moore, McDowell, Wake, Rutherford, Guilford and Burke. Tobacco is made a specialty in Franklin, Davie, and Person, and ground peas (or nuts) in Onslow. In nearly all the counties farming is reported at a low state in management and profits. Corn is the staple for bread in many counties. Halifax reports the yield on best lands—cotton four hundred to five hundred pounds lint; corn on uplands twenty to thirty, and on lowlands thirty to fifty bushels; but on common lands throughout the State the average is one hundred to three hundred pounds lint; twelve to twenty bushels of corn, five to ten bushels of wheat. Onslow reports ground nuts fifty to ninety bushels per acre, at $2 25 to $2 50 per bushel; and sweet potatoes fifty to sixty bushels, at $4 to $10 per barrel. Sampson reports that before the war, at its county fairs, prizes were awarded for one hundred bushels of corn and thirty bushels of wheat to the acre.

5. Drilling in grain crops is not practiced in the State, except a few experiments in two counties; and the general amount of wheat is sowed at the rate of one bushel to the acre, and lightly ploughed or harrowed in. The seed wheats preferred are the earliest and hardiest procurable, and are as follows: Purple straw (called a *white* wheat, while others speak of "rare ripe" as a synonym, and call it a *red* wheat, thus causing doubt and confusion) is preferred in Duplin, Davidson, Randolph, Chatham, Halifax, Franklin, and Montgomery; Mediterranean in Randolph and Stokes; white Baltimore (pronounced very good, but rather uncertain) in Stanley, Rowan, and Rutherford; blue stem in Wilkes, Franklin, Polk, Alleghany, and Burke; Walker in Madison, Alleghany, Jackson,

and Macon ; Johnson white in Halifax; Orleans white in Anson; early white and "Ruffin" in Camden; red May in Mecklenburg; and Clingman in Henderson. It is note-worthy that the early Tappahannock, distributed by this department, is superseding all or nearly all these varieties as fast as it becomes known, and is now preferred in Lincoln, Anson, Mecklenburg, Wilkes, Polk, Caldwell, Davie, Person, Watauga, and Burke, for its early ripening, freedom from disease and insects, good yield, and hardiness. Sowing is done from early in September to January, but generally in October and November. Harvesting is generally in June, sometimes extending into July. In one wheat-growing county the cradle is spoken of as lately superseding the reap hook, (sickle.)

6. Crab, wire, and sedge-grasses are the most common *natives*. Herds, meadows, blue, timothy, and water grasses, and the clovers are more or less common in most counties. *Lespedeza* (wild clover) in Lincoln county is rooting out the sedge and crab-grass. But few regular pastures or meadows are made. Most stock is turned into forest and mountain ranges in the spring, and remain there until after harvest, when it is put into the fields. On some of these ranges cattle grow fat. Regular pasturing costs from one dollar to two dollars per month; in ranges, the expense of occasional attendance and salt is from one dollar to four dollars the season, which lasts from six to eight months, and winter foddering from three to four and a half months. Little or no stock is raised in Bertie, Northampton, Anson, and Stokes counties.

7. The long seasons mature northern winter apples too early for good keeping, but the fine Virginia and native winter varieties keep well. Only small quantities of fruits are raised in Northampton, Anson, Camden, Gaston, Moore, and Cumberland; but if there was a demand, nearly all would be found well adapted to fruit raising. The other countries are well suited to this culture, and fruits of all kinds (except tropical) are easily cultivated and produce abundantly. In some counties the apple, in others the pear, and in yet others the peach are never failing. In many, the native grapes, especially the Scuppernong, produce abundantly, and are free from mildew and rot. In Wilson the Scuppernong yields from 20 to 25 barrels of juice per acre. In Chatham apples are profitable. In Polk one hundred apple trees yield one hundred gallons of brandy. In Alleghany apple trees average ten bushels each, at a profit of twenty cents per bushel. In Davie an acre of apple orchard is worth from $100 to $150 annually. In Onslow fruit raising is profitable and orchards on the increase. Wilkes is claimed to be the best county in the State for *good* apples and cherries. In Guilford orchards of good apples, peaches and cherries, are profitable, and in several others fruit raising could be, if facilities for marketing were afforded and proper attention given to the business. In Stanley pear blight is prevented by a free application of putrid urine to the roots at the beginning of winter, and stone fruit trees protected from the borer by applying the same remedy before and while the insect is at work.

### SOUTH CAROLINA.

Returns represent the decrease of real estate to be from 25 to 80 per cent., making the average for the State about 60 per cent. The causes are variously stated: general indebtedness, scarcity of money, want of reliable laborers, great loss of capital in slaves, want of capital, unsettled condition of the country, general poverty of the people, fear of confiscation, and negro domination.

2. Union district reports none but worn-out lands, worth little; Chester, the same, but on trap formation, and can therefore be easily reclaimed by deep ploughing, while the wooded lands are well timbered. In Spartanburg woodland is seldom sold, except as part of cultivated farms, and then at four to five dollars per acre. The uplands are thin in soil; the gray—standing drought—is best for cotton, and the reddish for wheat. Georgetown has pine lands, for poor, coarse pasture, at 50 cents to $1; such as lie near water carriage are worth $1 50

to $2 for turpentine and lumber. Few sales are reported in Pickens; asking price from 10 cents to $5 for lands that will yield ten to twenty bushels of corn and four to ten of oats, rye, or wheat. Abbeville unimproved lands are generally poor ridges and abandoned lands, at $2 per acre; Sumter, light sandy, with clay subsoil, at 50 cents per acre, which, if covered with pine, are valuable for turpentine; Richland, from $1 to $5; much is valuable only for timber; the oak and hickory lands will yield 500 to 1,000 pounds cotton, 10 to 20 bushels corn, and 8 to 12 bushels wheat; in York county, King's mountain lands, fit only for coaling and iron working, are now being operated by two iron companies. Marion has much virgin land, valuable for farming, adapted to cotton, corn, rice, &c.; heavy pine forests scarcely touched, valuable for naval stores; and swamp lands for oak and cypress lumber—average price, $2. Barnwell reports rich alluvial swamp lands on water-courses, expensive to clear and drain, heavily timbered with sycamore, cypress, poplar, short-leaf pine, &c., and cane-brakes, affording rich pasturage the year round. The oak and hickory lands are less rich, but easier cleared. Pine lands and barrens, kept for "ranges," are too poor to cultivate; average price, $2 per acre. Lands rated at 6 bushels corn per acre can easily be made to produce much more by a good cultivator, as 600 bushels sweet potatoes have been produced on such lands by manuring and good tillage. Barnwell district, it is claimed, is peculiarly adapted to produce silks, wines, and fruits, and has railroad and water communication to all parts of the State. Iron of superior quality, in great abundance, is found in Spartanburg, but only used for plantation purposes; ore is reported in Abbeville. Gold is found in Spartanburg, in Pickens, (where a company is now successfully at work, near Walhalla,) in Abbeville, (where "Horn's gold mine," discovered in 1834, has already yielded $1,000,000, and is still worked with profit;) and in York some mines have lately been sold to northern capitalists, including some California miners. Lead, also, is found in Spartanburg, copper and silver in Pickens, very pure ochre in Abbeville, and immense beds of kaolin and superior buhr-stone. Marl in Barnwell contains a large percentage of lime. This district has had several manufactories of cotton, paper, &c., in profitable operation, and some are yet running successfully.

4. Cotton is the only special or market crop in Spartanburg, Union, Abbeville, Sumter, Richland, York, (southern part,) Chester, and Marion, and raised also as one among others, in Barnwell. All testify that at present it is profitless, and in most cases a losing crop. Rice has been the special crop in Georgetown, but only about one-tenth (5000 tierces) of the former amount is now raised. Corn and wheat are grown in Spartanburg as a principal crop; also, rye, oats, and common and sweet potatoes for home consumption; the same is true of Abbeville and Chester. In Barnwell the Irish potato has been grown, with no manuring and little cultivation except mulching, at the rate of 400 bushels per acre. In the same garden, out of 700 cabbages, 500 bore large heads, some of the early York 42 inches in diameter, and other vegetables of proportionate size, all showing that the soil only needs better culture to produce abundantly. As the season is from four to six weeks earlier than in New Jersey, market gardening for northern markets would be profitable as fruit growing in the latter State. The only implement for cultivation in Union district is the common one-horse plough, and there is no machinery for harvesting crops. The yield of farm lands is generally 300 to 1,000 pounds seed cotton, 8 to 50 bushels corn, 20 to 40 bushels rice, 4 to 15 of rye, and 10 to 20 of oats. Of course better implements, thorough tillage, and good use of marl and other materials and manure, would greatly increase these products.

5. In Spartanburg, Pickens, Abbeville, and Chester, red wheat, (also called Hunter and Alabama) is preferred; in Union, Chester, and Marion, the red May, (also called "Orleans;") in York, the red Mediterranean for poor, and red May for good lands. In Sumter and Richland, also, red wheats are preferred.

In Georgetown no wheat is grown. Among white wheats, Walker, King, Baltimore, Virginia white, Big white, are named, but red wheats are generally preferred as hardiest and earliest, and therefore escaping rust. The Tappahannock is preferred to all kinds where known. Time of sowing is generally October and November, but varies from the first of September into January, and harvesting generally early in June, but varies from the middle of May to July. The usual mode is to sow broadcast from one to four pecks on unploughed corn ground, covering with a shovel-plough; sometimes the harrow and roller follow; nature does the rest, and a poor crop is the result. Mr. William Robinson, of Fairfield district, raised 113½ bushels wheat on two acres by ploughing "red mulatto" land one foot deep and manuring well. Harvesting is done with the reap-hook or hand-cradle. Not three per cent. of the grain is drilled—nearly all broadcast.

6. Broom sedge and crab grass are the principal native grasses reported, to which Abbeville, York, Chester, and Spartanburg now add *Lespedeza striata*, variously termed Southern, Japan, and wild clover. All unite in testifying to the good qualities of the latter as a pasture, it supplanting sedge and Bermuda grass, and being easily exterminated by the plough and hoe. Fowls grow fat on its seed during winter. It will grow in pine thickets where nothing else will grow. It salivates horses in the fall like other clovers. The stalks and roots die out in winter, but it springs up from the seed early in the spring. In general only working cattle and milch cows receive feed from about April to October or November; they are turned out on abandoned lands and into the woods, where they live on shrubs and wild grasses until after harvest, when they are pastured in the grain fields. In canebrakes cattle do well all the year. In Georgetown the woods are burnt over to promote an early start of grass; after which, in February and March, many cattle die of starvation. Sumter reports, "farm animals cannot subsist on our pastures." No shelters are provided for cattle.

7. Winter apples do not flourish south of the Blue Ridge; all others, and fruits generally, do well when cultivated, but there is no market. In Union peaches fail about every third year; apples are surer. In Georgetown pears do well. The Scuppernong grape never rots, and figs flourish. In Pickens the Winter Sweet apple never fails, and the buff apple is highly valued. In Marion an acre of grapes yields 1,200 gallons wine, and will be worth $500 a year for many years. In Barnwell large orchards of peaches, raised for northern markets, have proved very profitable, and apples and pears can be made so. Near Aiken 300 to 500 acres of grapes flourish, rarely mildew or rot, and produce abundant fruit of fine flavor. Brandies were formerly distilled largely from cultivated and wild fruits, berries, haws, persimmons, &c., but since the war these manufactures receive less attention. There can be no doubt that fruit-raising could be made remunerative as market communications are opened, and the profits can be largely increased by proper care and management.

## GEORGIA.

1. Returns to our circulars from about fifty counties of this State show an average decline of from fifty to sixty per cent. in the value of farm lands, as compared with the estimates under the census of 1860. No county reports an actual increase; but Union, Fulton and Charlton show no change in value since the date named. A few counties report a very large decline—from eighty to ninety per cent., but the major portion range from forty to sixty per cent. The depreciation of these lands is of course attributable to the same causes which have similarly affected all the southern States, and the estimated values are but nominal, sales being few at any price, except when forced.

2. In 1860, the lands classed under the head of wild or unimproved lands embraced about one-fourth the area of the whole State, the figures of that time

being: improved lands in farms, 8,062,758 acres; unimproved in farms, 18,587,732 acres; wild or waste areas (including waters, &c.) not in farms, 10,461,510 acres. It is probable that the proportion of cultivated lands is smaller now than in 1860; and the estimated values given by our correspondents range from twenty-five cents to fifteen dollars per acre, according to location and resources. In Union, Murray, Chattooga, Gordon, Polk, Campbell, Cherokee, Jefferson, Johnson, Greene, Morgan, Carroll, Heard, Taylor, Charlton, Schley, and Church, embracing all the range of temperature and varieties of soil in the State, these wild lands may be purchased at from twenty-five cents to one dollar per acre; while in Floyd, Cobb, Milton, Forsyth, Columbia, Warren, Hancock, Newton, Butler, Houston, Crawford, Stewart, and other counties, the average value ranges from one dollar and seventy-five cents to five dollars, generally averaging something over two dollars. In fact, throughout the State, in every county, such lands are to be found at merely nominal figures, and of such variety and extent as to supply any character of soil that may be desired. In many sections these lands are mountainous and covered with a heavy growth of timber, and the soil, when cleared and cultivated, capable of yielding good crops of corn, the small grains, potatoes, &c., and are well adapted to fruit-growing; while in others the lands are flat and swampy, of little value but for the timber; but the larger proportion comprise lands susceptible of high cultivation, and capable of growing remunerative crops.

3. There is probably no State or country of equal extent in which so great a variety of soil, climate, and products exist as in Georgia. In one section are produced oranges, lemons, bananas, and other tropical fruits; while the other extreme yields all the products of the northern States. One chief cause of this variety is doubtless the different elevation of the several sections. It is claimed that there is scarcely a plant of value to man, except coffee, that cannot be grown in this State, and but few minerals of use in the arts not found within its limits. The northwestern part of the State is mountainous, and the summer climate delightful and healthy. The northwestern portion is a blue limestone region; the river and valley lands are very fertile, and comparatively fresh, the valleys varying in width from one-fourth of a mile to two miles. Wheat, Indian corn, cotton, grass, &c., yield well; and it is claimed that with manuring and deep ploughing as much can be raised here as in any part of the Union. The climate is agreeable and healthy, except in the vicinity of sluggish creeks, where there is liability to chills and fever. Water-power is abundant, and bituminous coal of excellent quality is extracted near the Tennessee line; and iron ore, lime, cement, slate, and white marble abound.

There are no mountain ranges in middle Georgia, the surface being undulating. Large portions of this section were originally very rich, but they have been scourged by bad cultivation, and are now much worn and reduced. Manures act well upon these lands, as they are more easily restored than new lands are cleared. Most of middle Georgia is quite healthy, the winters mild and the summers warm, though not too hot for white labor. The rivers are bordered with bottom lands of great fertility, covered with valuable timber; but these are liable to overflow and have not been reclaimed, though protection is practicable. These bottom lands are frequently four or five miles wide, with a soil of great depth, and it is stated that there are probably more acres of rich, unreclaimed swamp lands in middle and southern Georgia than the whole kingdom of Holland, and when reclaimed will yield more than a bale of cotton to the acre. They will not now command more than $1 per acre. The timber on this vast extent of bottom land would probably more than pay the purchase, clearing, drainage, and embankment.

Southeastern Georgia comprises the flat pine region and the rice and sea islands on the coast. The pine land is very poor, and valuable only for range and timber. The rice and sea-island lands were valuable before the war, but

have depreciated greatly, as it is said they can be worked only by negroes, being too sickly for white men to live upon them. They can be converted into meadows of the finest quality, and will yield heavy crops of clover, timothy, &c., which find a ready market in the West Indies, netting more money than rice, and the crops can be gathered by white men before the sickly season sets in.

Southwestern Georgia is in the tertiary formation, resting on what is called bottom limestone, being the great cotton region of the State, and probably as good, if not the best, in the whole south. The land is quite level and easily worked. Our correspondent says: "A really thrifty farmer in southwestern Georgia need buy very little to eat or wear, as he can raise his own meat, corn, wheat, cotton, wool, sugar, rice, tea, potatoes, &c., &c. Before the war good plantations in this region commanded $20 to $30 per acre, but the average now falls below $5 per acre." Some portions of southwestern Georgia are healthful, while others are malarious, and white men especially are liable to disease.

As has been stated, Georgia is rich in a variety of minerals; gold, iron, copper, marble, slate, limestone, &c., abound in all sections of the State. Union, Cobb, Cherokee, Forsyth, Milton, Hall, Columbia, Carroll, Merriwether, Butts, Bibb, and other counties, report deposits of gold, in some cases very rich, and promising large returns under thorough and systematic development, of which little has yet been practiced for want of capital and enterprise. The mountain ranges are full of iron ore, and the white marble quarries of Cherokee and other counties are extensive, while the slate quarries of Polk county are attracting attention. Investments of northern capital are being made in mining operations, and with fair management must prove remunerative.

4. Wheat, corn and cotton are the leading products of the State, but the soil and climate are capable of producing a great variety of crops. Cotton culture has been superseded in many instances by crops of Indian corn and wheat, and the indications now favor continued change in that direction. The system of farming in Georgia has been ruinous to the lands; the course of cultivation having generally been to crop with cotton and corn, until the soil refused to produce paying returns of either, when it was rested with small grain. A few years of such cultivation completely exhausted the soil, when it was turned out to grow up in sedge, briars, &c. As a matter of course, such farming could yield little profit in the long run, and must be superseded by a more liberal system, if the planter is to be permanently prosperous. Union county grows a great deal of fruit for distillation, and before the revenue laws were enforced, this business brought more money into the county than all others combined. Our Jefferson county correspondent says: "Cotton has always been a specialty in our county, its production in times past having been so profitable that little attention was given to anything else. The average production is about two hundred pounds of ginned cotton to the acre, or about five bales to the hand; the hands making at the same time sufficient quantity of provisions for the next year. Farmers generally average about $300 to the hand." From Putnam, our correspondent writes: "Those who have planted the most cotton have lost the most heavily, while those who planted largely of corn, wheat and oats, have made some money. The culture of cotton requires labor from the 1st of January to the 25th of December, making it cost from $28 to $32 per acre, and yielding on an average $16 to $18 per acre, including tax; while the cultivation of corn requires only about six months, including gathering and housing, and yielding from $20 to $35 per acre. Wheat and oats require no cultivation, and there is no labor except the sowing, reaping and threshing required. The cost of sowing is about $1 50 per acre, and the yield is eight to ten bushels without manure, and fifteen to twenty bushels with manure; sometimes thirty bushels, in favorable seasons." The average yield of the several crops other than cotton, for the year 1866, were as follows: Indian corn, 6.2 bushels per acre; wheat, 4 bushels; rye, 4.8 bushels; oats, 10.7 bushels; bar-

ley, 8.2 bushels; potatoes, 62 bushels; tobacco, 625 pounds; hay, .9 of a to per acre. Improved culture will of course greatly increase these figures, whic in most items fall below the general average of the State in fair seasons.

5. As in most other States, there are a great many varieties of wheat sow in Georgia, some of them under local names not recognized elsewhere. Bu little spring wheat is sown, and that generally in the more elevated portions the State. Red wheat, or what is locally known as the Walker wheat, an the white bearded, are the varieties usually cultivated, the red being generall preferred because less subject to rust. In Gorden county the blue straw an white rust-proof (Gale) are sown; in other counties white flint, Tulman white Johnston's white, Orleans, Tappahannock, golden chaff, purple straw, red May &c., are grown to some extent. The seed is sown or drilled from the last of Sep tember on to the middle or last of December, and the crop is generally harveste from the 1st of May to the middle of June. Comparatively little of the seed i drilled, in many of the counties none at all, but the system is commanding attention, and the proportion sown broadcast is decreasing. Wheat is generally sown upon stalk land after the corn is gathered, and without previous ploughing Almost the only manure applied to this crop is cotton-seed, and that not gener ally, but always with beneficial results.

6. A great variety of grasses are found in Georgia, both natural and cultivated and pasture is supplied at but trifling cost, most of our correspondents rating it "no expense." Crab-grass grows in all sections, also crow-foot, sedge, wire-grass, wild oats, clover, *Lespedeza striata*, &c., the last named grass spreading with considerable rapidity and considered valuable by the planters. Clover grows well on good dry sub-soil; herds-grass and timothy do well on rich bottom lands of a close texture; lucerne is counted the most valuable of all forage crops in Georgia, and grows as well here as in France, making most excellent hay. On manured uplands blue-grass, meadow, oat grass, orchard grass and vernal grass grow during the winter, and if these are kept shut up from June to December stock may then be turned in and kept fat without other food. In middle and lower Georgia heavy manuring is generally necessary for clover, the cost of which may be repaid by its application to wheat with which the clover is sowed; the clover must be lightly grazed during the heat of summer, but may be pastured in April, interrupted in July and August, and resumed in September to be continued until January.

7. Fruit culture has received comparatively little attention in Georgia, but the capabilities of the State are beyond question, and are being gradually developed in different sections. Our Union county correspondent writes: "The capability of this county for fruit may be said to be rarely surpassed so far as peaches and apples are concerned. One acre sustains about fifty apple trees, yielding annually twenty to thirty bushels to the tree. Apples are best adapted to the soil and climate, and are worth here about fifty cents per bushel. A neighbor last year sold from a two acre-orchard about 700 bushels of apples, dried about 100 bushels, gave away to all who wanted, and had plenty for family use during the winter." Peaches are especially successful, the trees being long lived and subject to few diseases, and the shipping of early crops to the northern markets must eventually become an important and profitable business near the line of railroads on the coast. Our Hall correspondent writes: "Peaches grow to perfection; we have them from June until the last of October. They grow in the corners of fences, in old fields, or anywhere the seed may chance to be dropped. We have apples all the year round. Much attention is being given to this fruit, as its culture is considered profitable." Peaches are extensively grown in Spalding county, and from one point, Griffin, 200,000 pounds of dried fruit of last year's crop have been shipped. Large quantities are also dried and considerable distilled in Pike county, but the crop is uncertain, being liable to injury from frosts. In Taylor county peaches are the surest crop, seldom, if

ever, proving an entire failure. The banks of the St. Mary's river, in the southwestern part of the State, is represented as a very paradise for this fruit. Our Clarke correspondent writes: "All fruits do well. Dr. Berckman, the pomologist, said at one of our fairs that our pears were better in quality and appearance than any he had ever seen, and he had witnessed many displays in Europe and the United States. Dr. B. has now, near Angusta, 20,000 seedling pears to test. Our only trouble is late spring frost. This we avoid by heavy smoke early in the morning after a frost. Native winter apples do well, but northern varieties ripen too early. Figs and grapes do well." Grape culture has not been so generally successful as that of many other fruits, but many of our correspondents speak encouragingly. From Warren county we have: "Grapes do well here, and are highly profitable, but have been shamefully neglected. Some years ago a neighbor had ten vines growing in his garden, from which in one season he made 300 gallons of wine." From Cherokee: "The few vines that have been attended to are doing well, proving that our soil and climate are adapted to the culture. A. K. made last season, from a vineyard of perhaps three acres, left for years without cultivation, about ninety gallons of wine, (Catawba;) W. G., from a quarter acre made about twelve gallons." In Baldwin county "on an acre and a half vineyard a gentleman made about 600 gallons of wine, and will probably realize $1,400 net, or 150 per cent. on capital." In Taylor, Crawford and Charlton the Scuppernong grape is a perfect success, growing luxuriantly and with little trouble, the fruit being large and rich; the vines bear the third year and are not subject to decay. A single vine in ten to fifteen years will extend over an arbor 100 feet square. Wild grapes are found in abundance. In fact, all fruits not strictly tropical may be cultivated in Georgia with success.

FLORIDA.

1. Our returns from Florida are rather meagre, only about one-fourth of the counties furnishing responses to the circular sent out. From the northern tier of counties Jackson and Leon report an average decline of seventy-five per cent. in the value of farm lands since 1860, and Liberty fifty per cent. decrease; while in Duval interior lands have declined twenty per cent., but on the St. John's river have advanced one-third in value since the date named; and in Baker the estimated increase is fifty per cent. Alachua county shows a decline of fifty per cent. The next county south reports no change since 1860, our correspondent remarking that but few persons there own the land they live upon, the custom being to "settle in the woods, put up a log-house, clear a small tract and plant it for a few years, and when it begins to get poor move into the woods again, or move about where the range is good for cattle. There are, however, some fine farms near the county seat, where good corn and some cotton is raised. The value of improved lands is increased by cow-penning. The land is worth from five dollars to twenty dollars per acre. Good pine land can be bought at five dollars per acre, with houses, fences," &c. Still further south in Manatee county, bordering on the cypress swamp regions, lands are rated at one-half the estimated value in 1860. In fact, throughout the State the prices now given for farming lands are merely nominal, consequent upon the unsettled state of affairs, and comparatively few sales are made. The average decrease for the State, on the basis of these returns, is 55 per cent.

2. There is a large area of wild or unimproved lands in the State held at figures varying from ten cents to eight dollars, averaging from one dollar to two dollars per acre. In Jackson the unimproved lands are claimed to be better than the nominally improved—will yield from ten to twenty bushels of corn, or from six hundred to one thousand pounds of seed cotton to the acre, and may be purchased at from one dollar to two dollars per acre. In Liberty the average value is given as low as ten cents—land low, sandy hommock, capable of

producing oranges, sugar cane, corn, potatoes, rice, and long cotton; Leon, one dollar and fifty cents per acre—quality medium, fair while fresh, easily cleared and cultivated, and will produce twenty bushels of corn or half a bale of cotton per acre, and by a little manuring can be kept up to this; Baker county, one dollar and fifty cents per acre—very productive for cotton, sugar cane, potatoes, vegetables, &c.; Duval county—average fifty cents per acre. In Alachua nearly all the wild lands are owned by the State, the general government, or railroad companies. State lands are held at from fifty cents to eight dollars, mostly at the former. United States lands are only in the market as homesteads, and railroad lands vary in price from one dollar to two dollars and fifty cents. The land is principally "pine barren;" considerable heavy pitch-pine interspersed with cypress swamps, and in sections hommocks, the latter being very rich. The greater part of the land, however, is valuable only for timber and turpentine. In Levy the wild land is chiefly timber, and valued according to its location. A portion of this land is comparatively worthless, consisting of sand-hills and scrub lands, covered with brush and filled with a variety of wild animals, and people living adjacent are compelled to keep gangs of dogs for protection. There is plenty of government land upon which to settle, some of it the best hommock land, capable of yielding an average crop of forty bushels of corn; prices from one dollar to five dollars. Manatee county also has considerable hommock lands of first rate quality, underlaid with marl; worth from five dollars to ten dollars per acre. The timber of the hommocks consists of live oak, hickory, red cedar, bog, &c., while the pine is the turpentine or long pine.

3. The resources of Florida are to be found in her timber and soil, there existing (so far as yet developed) little of mineral wealth within the limits of the State. In Alachua a small deposit of bog iron is reported, and our Levy county correspondent states that there is a good iron mine in that county which has been worked, but not properly developed. The ore is said to contain seventy-five per cent. of pure iron. The mine is not now worked and could be purchased cheap. Timber in variety abounds in almost unlimited quantity, but in some sections the lumber business has been overdone, and the mills may be purchased at half cost. The climate and soil are exceedingly favorable to the culture of fruits and to successful general agriculture. Our Levy county correspondent writes: "The resources of this county are the best I ever saw at any place. The soil is not as good as at the west, but the climate is fine and less work is required to make a good living; and with the same spirit of enterprise here as is seen in the west, would develop a land not now known in the United States."

4. Cotton, corn, sugar-cane, rice, potatoes and fruits are the principal crops, but under the present system of culture yields are small and agriculture not profitable. In a number of counties cotton has been the specialty, but under present prices its production will doubtless decline in favor of other crops. Sugar-cane is considered a good crop and is getting more in favor; it is easily cultivated and, as our Leon correspondent says, "would be a good crop for white labor." In Baker county, sea-island cotton and sugar-cane are the chief productions. Duval county, sweet potatoes, corn and sugar-cane; corn yielding twenty bushels per acre, sweet potatoes one hundred to two hundred bushels, sugar-cane two hundred gallons sirup and two hundred pounds of sugar; the latter is the most profitable crop. In Alachua, sea-island cotton is the specialty, of which our reporter says: "The price of this cotton last year ranged from 40 cents to $1 60 per pound; this year from 35 to 90 cents. The average yield is about eighty-five pounds of lint per acre, but as high as four hundred pounds have been raised. At 50 cents, with the present labor, it is a paying crop. Cotton is a hard crop to raise, takes the whole year, and, for the labor expended, is the least paying crop in the country. During the past season ninety-nine out of every hundred have lost money. Corn produces an average of eight bushels on

pine lands and fifteen bushels on hommocks. Sugar-cane does well, but is raised for home consumption only."

5. Wheat is not grown as a crop in Florida, though a correspondent writes from Levy county that he thinks it would do well on their hommock lands, and our Manatee reporter says he has sown a package sent from this department, and it now looks as well as he has ever seen wheat in Maryland or elsewhere.

6. There are a variety of natural grasses growing throughout the State, and as a general rule cattle are pastured on the wild lands and without expense, frequently the whole year round. Among the grasses named by our correspondents are Bermuda grass, crab grass, crow-foot, joint grass, carpet grass, wire grass, &c. Our Levy county correspondent writes: "The grasses are all wild; stock runs out all the year in the woods. They are gathered in the spring, and penned every night until about August, when they are again turned out to run during the fall and winter. While kept up they are branded, and the cows are milked, though they are generally small and give but little milk, from one to three quarts per day. The calves during the summer are kept from the cows, except morning and night; during the fall and winter they run together."

7. The capabilities of Florida for raising tropical and semi-tropical fruits are well known, and must soon attract the attention of fruit-growers. In Jackson county grape culture is becoming prominent, the Scuppernong variety being most popular, as it succeeds finely and is free from disease; the soil and temperature of the county is said to be adapted to the production of grapes, which grow naturally and in abundance. Our Liberty correspondent says: "We have a small orange orchard of twenty-five trees, which yields at the rate of $25 per tree. The trees cost but $1 each annually for pruning and keeping clear of insects." In Baker county oranges and peaches, vegetables, &c., do well and pay largely. Our correspondent writes: "Send us some of your gardeners who understand the business. Last year a gardener planted fifteen acres in tomatoes, melons, cucumbers, &c., which were ready for market eight weeks in advance of northern vegetables. He shipped to New York, and his net gain was $22,000. I think he is from Maine. An orange and peach orchard of about one hundred trees yields to the owner $1,200 annually. We need enterprising men to improve our lands." Large orange groves are being planted in Levy county, and northern men are settling along the coast, planting fruit groves and improving the islands, where peaches, oranges, lemons, pine-apples, bananas, grapes, grape-fruit, &c., may be raised in abundance. Tropical fruits do well in Alachua county, especially the more hardy ones, figs, pomegranates, &c., while in Manatee, further south, the capacity for such fruits is unsurpassed, and only requires communication with northern markets to develop capabilities in this regard, and to attract industry and enterprise from other States.

ALABAMA.

1. The county reports show an average decrease in the price of farm lands of about sixty per cent.; no county reporting an increase. The decline is not uniform throughout the State, being affected in many cases by local causes, and varying according to the size of the tracts or farms offered for sale. Coosa county exhibits a decrease of at least fifty per cent. in large plantations, while small and well-improved farms sell at about the same price as in 1860. The maximum decrease reported is in the counties of Coosa and Montgomery, where it reaches ninety per cent. A decline of fifty per cent. is observable in Macon county. Our correspondent writes as follows: "In 1860 the lands of Macon ranged in value from three to fifty dollars per acre. As the county is penetrated by two leading lines of railway, connecting on the east with Columbus, Georgia, and on the west with Montgomery, Alabama, access to market is ready and reliable. The county is in general remarkable for the salubrity of its atmosphere, and in many parts for the fertility of its soil. Towards the

northern extremity the geological formation is metamorphic, presenting lim stones of very considerable economic value. The southern portion of t county lies in the upper margin of that wide belt of the cretaceous formati which stretches entirely through the State, and which furnishes some of t richest lands in the cotton-growing States." In Marengo county, near t western border of the State, the decrease is sixty-six per cent., though some the best lands in the State, worth in 1860 $20 to $75 per acre, are includ within its limits. The reporter says: "In the section known as the 'Can brakes,' plantations rarely changed hands during the lifetimes of the owner A gently undulating surface, a soil of great fertility, and a pure air characteri this portion of the county. Cedar of large size originally covered most of th land and constituted the fencing material. The soil, being largely impregnate with lime, is admirably adapted to the cereal crops, while cotton, in favorab seasons, yielded large returns. Corn, cultivated on the same land for thirt years without manure, frequently yields fifty bushels per acre. These lan are intrinsically as valuable as any in the United States. In other parts of th county are large areas of improved fertile 'post-oak' and river lands, that wer worth, in 1860, $20 to $30 per acre. All these advantages must in time mak the county exceedingly attractive to immigration. Cut up into small farm and cultivated by an intelligent population, these lands will rapidly attain thei former value, and probably exceed it." There is a class of canebrake lands i many counties of central Alabama of a similar character.

2. The average price of unimproved lands may be stated at $1 75, the range being from twelve cents to $5, including a variety in quality and natural capa bilities. In Macon, Conecuh, Butler, Chambers, Morgan, Tuscaloosa, and some other counties, the general character of such lands is poor; pine forests, with a thin soil, covering large areas. The timber constitutes the chief value of such lands, though in some cases, when cleared, especially upon the banks of the small streams, they produce well. In some other sections of the State the un cultivated lands are heavily timbered with pine, oak, hickory, poplar, walnut mulberry, &c. They are generally attached to plantations, and are used as summer ranges for cattle and hogs. With a proper system of culture, and an industrious, energetic population, a large proportion of the now unimproved lands will be reclaimed, and prove of great value.

3. The inducements presented for the investment of capital and the immigration of intelligent labor in the agricultural and mineral resources of the State must, at some future time, make it one of the most desirable portions of the country.

Immense forests of the finest qualities and most valuable kinds of timber cover large tracts of land in the counties of Marengo, Clark, St. Clair, Clay, Marshall, Randolph, Lee, Baine, Hale, Chambers, Montgomery, and many others; while in Tuscaloosa, Perry, Butler, Conecuh, Coosa, Calhoun, and Macon, pine, in seemingly inexhaustible quantities, awaits the introduction of steam saw-mills. As yet but little lumber is sawed beyond the wants of the resident population, in part owing to the want of cheap transportation.

Minerals have been lavishly distributed. Coal, iron, gold, silver, copper, lime, granite, and serpentine are found in many localities, and in some instances were successfully mined before the commencement of the war. In Randolph county gold was discovered in 1836, and fortunes were made by mining. In Baine county the indications of copper and lead in the mountains have been sufficient to induce efforts, on a small scale, to develop them. Lee county produces granite of an inferior quality, and also a coarse serpentine, which was worked by the aborigines into water vessels, and is now used for backing fireplaces, &c.

4. Previous to 1860 cotton received by far the greatest share of attention, and constituted almost the only article of export. Other crops were raised for

ome consumption, and made subsidiary to it. For many years past the yield er acre of the great staple has been steadily diminishing under the careless ystem of culture which obtains, no return being made to the soil for the con- nued and exhaustive demands made upon it. An almost universal complaint made of the unprofitableness of cotton culture at present prices, and in the nsettled condition of labor, and a determination expressed to devote more ttention to the cereals and root crops, some of which are well suited to the soil nd climate.

5. Red May, purple-straw, blue-stem, Orleans, white May, red Mediterranean, ommon white, and other varieties of wheat are sown. Winter wheat is almost xclusively grown, but the crop is a very uncertain one, and but little care taken n its culture; drilling is almost unknown, the "brush drag" being frequently sed to cover the grain sown upon roughly-ploughed land. Red May, Orleans May, blue-stem, and purple-straw are especially mentioned as being earlier, more ardy, and less liable to rust, the great enemy of the wheat crop in that region. Seeding is done during October and November, and harvesting from May 20 to June 20.

6. No special attention has been given to the cultivation of grasses. Crab grass is the most common of the indigenous kinds, springing up in oat fields nd taking complete possession of the corn lands as soon as the cultivation of he crop ceases, thus furnishing good summer pasture. On worn-out lands broom sedge springs up, affording good early pasture, but becoming too dry and harsh by midsummer. In many places the Bermuda grass has taken firm foothold, nd within a few years the *Lespedeza* has made its appearance, displacing all ther varieties, and proving a very valuable acquisition to the pastures. In Marengo and Hale counties red clover has been found to do well on the richer soils, but is not generally cultivated. Some other varieties, such as flag grass, "nimble Will," &c., have good local reputation.

7. Fruits, in great variety, flourish. Apples, peaches, pears, plums, figs, apricots, pomegranates, grapes, melons, berries, &c., are grown, or grow spontaneously; but little attention, however, is paid to fruit culture, except for home consumption. The Scuppernong grape is reported by a correspondent in Marengo county to be entirely free from rot, and to yield certainly and largely. In Perry county 3,000 to 4,000 quarts of strawberries per acre, valued at 20 cents to 50 cents per quart, is not considered an unusual yield. A farmer in Macon county realized $87 50 from the melons grown upon one-eighth of an acre.

## LOUISIANA.

1. In the present unsettled condition of affairs in Louisiana, as in the other States of that section of the country, it is difficult to approximate the relative value of farm lands as compared with the census estimates of 1860. Our correspondents in no instance report the decrease in price at less than thirty-three per cent., and, in some cases, give it as high as ninety per cent., the former figures being returned for Washington, and the latter for Tensas and Concordia, with no demand and few sales other than forced, and little money in the country to purchase. The average for the State, on the basis of these returns, is seventy per cent. Our Tensas correspondent writes: "Within a year two of the most valuable estates have been assessed by order of the court, (the owner having deceased,) and the value placed on land, with every necessary improvement, was $5 per acre for the cleared, and $10 per acre for the portion in timber. In 1859 about 400 acres of one of these places were sold at $125 per acre, and $18,000 in cash paid upon it, but within the past twelve months the purchaser obtained a release of the purchase by forfeiting this payment. During 1860, when the levees were intact, these same lands could not have been purchased for $130 per acre, and would readily have commanded that price at public sale.

At this time the value of land is only nominal, and commands no stated price. Our Rapides correspondent says : "Well improved sugar and cotton plantation have no fixed price ; few sales ; no persons here able to buy ; nearly all desiring to sell. Hundreds of thousands of well improved acres are now lying idle there being no labor for them. The richest lands (no levees needed) are growing up in weeds, trees, &c. On my own plantation, where I have made over 1,000 hogsheads of sugar, 2,500 barrels of molasses, 15,000 bushels of corn with hay, &c., with pastures for 500 head of horned cattle, large flocks of sheep and hogs, mares and colts, I have this year less than 200 hogsheads of sugar and but little corn ; stock of cattle, sheep, hogs, mares and colts all gone, destroyed during the war."

2. Under the heavy depreciation of plantations the market value of wild and unimproved lands must be but nominal, and our correspondents estimate them at from "but little value," to $3 per acre, according to location and resources. These lands are varied in character and quality, from light sandy loam on upland to heavily timbered bottoms and cypress swamps, the alluvial or red lands being of the richest kind when protected from overflow, and the light soil susceptible of thorough cultivation, and capable of producing good crops of corn and cotton.

3. In the soil and timber are to be found the chief resources of this State, but few minerals, except salt, having as yet been developed or discovered, though some coal, iron, and copper are reported to exist in Union parish. Timber is abundant in all parts of the State, embracing many varieties of oak, ash, cotton-wood, cypress, gum, elm, sycamore, pecan, hackberry, pine, &c., and presenting great inducements for development, some of the pine forests capable of producing quantities of turpentine. In St. Mary's parish alone it is estimated there is timber enough to make 10,000,000 cords of sugar wood, and swamps to the extent of 50,000 acres which may be reclaimed and converted into the richest rice fields. As an agricultural State Louisiana has great resources. In Union parish, in the northern part of the State, there are swamp lands which are said to have been in cultivation one hundred years, and the crops now taken from them will compare favorably with those gathered from fresh lands of the same quality. The parishes of St. Landry, Lafayette, Vermilion, St. Martin, and St. Mary, on the southern coast, forming a body of land about ninety miles in width, and running back from the coast about seventy-five miles, contain over 3,000,000 acres of tillable land, most of which is claimed to be of inexhaustible fertility, producing varied and abundant crops, and yielding garden vegetables, &c., all the year round.

On one of the islands within the limits of St. Mary's parish—Petite Anse or Salt island—there exists an immense bed of salt. By boring, parties have proved that the bed is half a mile square, and it may extend a mile or more. They have gone thirty-eight feet into the solid salt, and find no signs of the bottom of the stratum. The surface is about on a level with tide-water, and the earth covers the salt from eleven to thirty feet. On the surface of the salt they found a soil like that of the surrounding marshes, and above this sedge or marsh grass in a good state of preservation. Above the latter the soil appears to be the workings of the hill-sides above. The Planter's Banner says of this remarkable mine, "it is believed that, like the salt mine in Poza, in Europe, it was moulded in the crater of a volcano. The surface of the salt formation is on a dead level with the surface of the Gulf water. It is not at all improbable that about the time that the fires of the ancient volcano that burnt out the bowels of this island were nearly exhausted, a breach next to the water of the Gulf was made, and a flood of salt water entered the burning chasm and extinguished the fires at the same time that the heat evaporated the fresh water and left a deposit of salt. As the earth was heated for long distances below and around, it could not suddenly cool, but would continue for days, and, perhaps, weeks and months,

to impart its heat to the mass of solid salt and water above it. As the fresh water evaporated, salt water would flow in and take its place, and from these new supplies deposits of salt would continue to be made till the surface of the solid mass was on a level with the Gulf. There the work would stop. The baked sides of a crater would form a good pit for the manufacture of salt. The washings of the tides would make a muddy deposit on the surface of the mine, and in this mud marsh-grass would grow. This mud and grass they now find on the first formation above the salt. Then the rough and loose earth thrown up, forming a hill on the north side of the salt mine, would begin to wash down by succeeding rains. That is exactly what it has been doing till the marsh-grass and earth are now covered with a deposit of mud from eleven to thirty feet in depth."

The region embraced within the parishes named is a fine grazing country, and vast herds of cattle and large flocks of sheep may be pastured upon the extensive natural meadows of the "Opelousas prairie," extending seventy-five miles southwest and northeast, with a width of twenty-five miles. One man is said to own 12,000 head of cattle, and it is estimated that from 75,000 to 100,000 head are now grazing upon these prairies.

4. Cotton, sugar, corn, and potatoes are the principal crops in Louisiana, and before the war the cultivation of the first two named was very profitable, but our correspondents uniformly represent the production of cotton as ruinous to the planter during the past year. Jackson parish reports two hundred pounds of lint cotton to the acre, fifteen bushels of corn, one hundred and fifty bushels of sweet potatoes, and twenty bushels of peas. Tensas parish, one to one and a half bales to the acre in good season, fifty to seventy-five bushels of corn; in cultivation, nine acres of cotton allotted to one laborer and five acres of corn. In Union parish about six bales of cotton to the hand was expected before the war. In Carroll parish cotton will produce six hundred pounds lint to the acre when newly cultivated, and a fair laborer can make eight bales of cotton and one hundred bushels of corn, yielding about $500 to the hand; but under the present system the average is two and a half bales cotton and twenty-five bushels corn to the hand. Prior to the war the parish of Rapides produced from 30,000 to 40,000 bales cotton, 15,000 to 18,000 hogsheads sugar, and 30,000 barrels molasses, but the production has much deteriorated, though with the labor and capital at command, the capabilities are still as great. In the southern tier of parishes sugar, rice, and tobacco are made specialties, and fruits are extensively grown, with great inducements for the increase of the latter production.

5. But little attention has been given to the growth of wheat, scarcely sufficient to develop the capabilities of the soil and climate to produce it successfully. In Bossier parish wheat was grown to some extent during the war and did well. The Tappahannock has been introduced in Union parish, and has demonstrated that wheat may be successfully grown there. In Avoyelles parish planters are trying the crop the present year. In a majority of the parishes, however, the culture of wheat is considered impracticable, the rust appearing to be its most serious enemy. When grown at all, the planting season is the last of October and first of November, and harvesting the latter part of June.

6. Bermuda and crab-grass, crow-foot, sedge, and the common prairie grass, with the swamp grasses and wild canes, afford the pastures for stock, upon which the latter can feed from nine to eleven months, and in some sections the entire year, without fodder or shelter. Our Rapides correspondent says: "Stock of every description—except working stock—can be sustained in this locality the entire year upon pastures. When the fields become exhausted they find sustenance in the woods and the wild cane, the latter being superior for horses and cattle in winter. There are several varieties of foreign grasses here admirably adapted to our soil and climate. Rye grows vigorously, and

affords good winter pasture, and if the stock be taken off in March it will mature a good crop of grain in June or July. Hungarian grass is a superior variety for hay. 'Reserve grass' eclipses all, being very luxuriant and nutritious. It is exclusively a winter grass, never appearing in summer. If allowed to seed, which it does in April, it will reproduce itself perpetually. After grazing it through the winter, if permitted to seed, it will yield a fair crop of hay. I consider it superior to all other winter grasses, and its seed is almost equal to oats." The vast prairie pastures of the Opelousas prairie, already referred to, contains more than 1,200,000 acres, exclusive of the numerous points of woods that fringe its margin on all sides. These prairies are admirably adapted to grazing, grass covering almost every surface that is not shaded by forests, or not in cultivation. In the parish of St. Landry alone there are over half a million acres in grass not under fence. On these prairies it is said that 100,000 tons of hay might be made yearly for the New Orleans and other markets, and which may be made and marketed a month earlier than western and northern crops.

7. Louisiana possesses great capabilities for fruit culture, and the climate and soil present strong inducements to persons desiring to engage in such production. In St. Mary parish they have fruits of various kinds from April to November: "The Japan plum grows all winter and ripens in April; dewberries also ripen in April, and grow in abundance; strawberries, blackberries, and mulberries ripen in May; plums in June; peaches, quinces, and figs in July, and grapes and apples in August. The Muscadine, a species of Scuppernong, grows wild and ripens in August; pears ripen in August, and grow in great perfection; oranges ripen in October, and usually remain good on the trees till December; bananas, limes, and lemons ripen in October." The yield of oranges per acre is enormous. Our correspondent writes that "it is usual to plant about one hundred trees to the acre below New Orleans on the river. Some orchards yield from $10,000 to $20,000 annually. A full-grown tree will bear 1,000 oranges, and a single tree has been known to yield 5,000 oranges. Trees commence bearing when five years old, when properly managed." What we quote in regard to the capabilities of this parish may be said, with slight variation, of most of the lower counties of the State, while in the more northern regions many of the fruits named grow in perfection, and in some localities the apple succeeds well. Our Rapides reporter writes: "I have a second crop of apples this year. They are hard, small, and poor, though they are eaten." In Washington parish a small orchard, chiefly peaches, in one season yielded a profit of $4,000, the fruit being early and within close proximity to New Orleans markets. Our East Feliciana correspondent writes: "This is one of the finest fruit regions in the world. Apples, peaches, pears, quinces, plums, figs, grapes, berries, &c., do well, and wild blackberries grow in great abundance, from which a superior wine is made. We have, as yet, but few orchards. One man this season sold $600 worth of pears from fourteen trees." Though but little attention has heretofore been given to fruit culture, the capabilities of the State are so evident, and the inducements so strong, in a pecuniary point of view, that this production must, at an early day, become a leading interest of Louisiana.

## ARKANSAS.

1. Two counties, Newton and Benton, report considerable increase in prices of lands since 1860; others give an average decrease of sixty per cent. (varying from twenty to ninety per cent.) since 1860. Jefferson reports lands almost for nothing; farms worth $100 per acre before the war would now bring hardly $5 per acre. Drew reports forced sales at what the creditor pleases to bid—sometimes only a few cents per acre; Clark, eighty to ninety per cent. decrease

m best lands for cash, and no buyers at that; Montgomery, prices much lepressed for two years after the war; but a good crop this year, and emigrants coming in, have brought them up to twenty-five or thirty per cent. of prices in 1860; Sebastian reports decrease at "ten-tenths," but looking up. The average depreciation for the State is fifty-five per cent.

2. Homesteads and other government lands at usual rates in Johnson, Clark, and Conway counties; some very fertile, but few entries. Hilly, heavily timbered lands in Montgomery at $1 25; Madison, at $3; Benton, table lands of Ozark mountains, $3 to $5. These are fertile for cereals, fruits, peas, beans, &c. Johnson reports government lands held by speculators at $5 to $8 for river lands, and $3 to $5 for uplands; and State lands, swamp and overflowed, at 50 to 75 cents—the same held by speculators at $1 to $3, and if good farm lands, $3 to $5; Sebastian river lands, $8 to $15, and uplands $2 50 to $5; produce cereals, potatoes, vegetables, and cotton; Union, various soils, at 75 cents; uplands produce 200 to 300 pounds cotton, and ten to twenty bushels corn; St. Francis, varied soils, $1 25; will produce 400 pounds of cotton, thirty-six bushels of corn, or twenty bushels of wheat or oats; Mississippi rice lands, annually overflowed and requiring levees, at 50 cents. Monroe, good black loam, at 50 cents to $10; will produce 500 pounds cotton, 30 bushels corn, and 25 bushels wheat; Prairie, hill or upland for 75 cents, and bottom land for $1. The upland prairie or timber lands will produce 35 bushels corn and 20 bushels wheat; under good system of cultivation, one-half more. In Drew, farms produce 200 to 300 pounds ginned cotton, 15 to 25 bushels corn, and 150 to 250 bushels sweet potatoes, without manuring; generally well timbered; forced sales at two and three cents per acre. In Clark, at forced sale, a section (640 acres) sold for $15, and a quarter (160 acres) for $5. No voluntary sales; money scarce.

3. Soils reported "rich" and "fertile," in Newton, Madison, Mississippi, Prairie, Conway, and Jefferson. Timber, of many varieties, reported in Newton, Madison, Sebastian, Union, Prairie, and White counties; pineries in Benton, Clark, and Prairie, and cypress forests in Monroe, (timber can be floated to the mills in overflows at little cost,) and Prairie counties. In Newton county lead and silver are found on the surface; in Madison, iron, coal, and lead; Montgomery, lead, silver, gold, and copper; Sebastian and Union, coal; White, coal, and salt by boring; but all undeveloped except a little coal for smithing. Benton abounds in minerals undeveloped. Clark reports that since the demise of King Cotton they have no resources—"everything lies around loose;" sandy lands abound in magnificent timber, but nothing is developed. Prairie county reports soil unsurpassed for farmers, timber for lumberers, black-oak and hides for tanners, railroad and river facilities abundant, healthy climate, good water, and plenty of good schools. Drew is the centre of the cotton region, and well supplied with water facilities for transportation. Jefferson has excellent soil, pleasant climate, and healthy country, but all destitute.

4. Union, Mississippi, St. Francis, Clark, Prairie, White, and Conway report that cotton *was* their specialty, but likely to be abandoned. Sebastian, Monroe, White, and Drew report cotton and corn, the latter probably to supersede the former. Montgomery and Madison, corn for bread, and for feeding cattle and hogs for market. Newton, corn, wheat, and sorghum abundant, and with little labor. Johnson, wheat, corn, and potatoes for home and market, and cotton for export. Sebastian, corn, cotton, and some wheat, but not cultivated in farmer-like manner. In Benton, apples are becoming a specialty; trees bear fruit at five years old; five to ten bushels at ten years old, the fruit selling at fifty cents, to be taken to Texas, where it commands high figures.

Prices reported in Montgomery: corn at 50 cents to $1, and raised at a profit of fifty to one hundred per cent.; in Johnson, corn, 60 to 75 cents; wheat, $2; sweet potatoes, 50 cents per bushel; Sebastian, wheat at $1 50 to $2.

5. In Montgomery, white and red May. Walker is best, not so early, an therefore subject to rust. White May not so early as red, but a much pretti grain. In Newton, Mediterranean and Walker; Johnson, red May, Walker, an red and white Mediterranean, the latter yielding most when they succeed, bu eight or ten days later; Benton, flint or May; Prairie, long bearded red, o account of the attacks of the small blackbird; White county, May wheat; Co way, little May; Drew, white, and red winter. The earliest ripening alway preferred on account of insects, birds, or disease. Usual sowing is in Octob and November; Newton and Madison in September, some as late as Decembe and in Prairie county, from October 15 to February 15. Harvest is in Jun generally, but commences in some counties by the middle of May. In all case they sow broadcoast, generally on corn ground before the corn is removed sometimes among the grass and weeds, and plough or harrow in. If the groun is first cultivated or ploughed, the grain is brushed in. Reporters generall state the yield at from five to thirty bushels, and agree that careful cultivatio would greatly increase it. In Monroe and St. Francis little or no wheat is cul tivated.

6. Principal wild grasses are crab grass on the poor and nimble Will o the richer lands; along rivers the cane shoots furnish pasture the year round beside these, blue sedge on elevated timber lands, and winter grass on river land in some counties; wild pea vines in the woods of Madison; blue grass, red to and timothy are natives in Benton county, and only need renewing every thre or four years in Mississippi county; barren grass on sandy lands and a peren nial on the black lands of Clark county; clovers, timothy, rye, and oats grov wild in Prairie county, and prairie and other grasses are named by some. N special pastures are grown, but cattle are turned out on ranges till after harves and grow fat. On cane lands they keep fat the whole year. In some countie from three to four months of foddering, with cotton seed and a little salt, i needed; pine, cane, and other thickets are sufficient shelter. Two acres of cot ton seed will keep a cow well with wild pasture. Hence cost of keeping i merely nominal, and in many counties stock raising could be made profitable.

7. Except in Benton little or no attention is given to fruit raising for profit yet in all counties peaches and apples do well, in some very well in abundance and quality, save that acclimated apples must be raised for winter keeping Figs do well in Clark, where peaches rarely fail, and apples not once in thirty years, some trees yielding seventy-five bushels each. Prairie county has severa large nurseries, and peaches and pears are larger and better flavored than at the north. Jefferson reports the pear and peach as succeeding best, and the Ouchita grape (now cultivated in France) as originating there, wild. Chickasaw plums, very fine, grow wild in great abundance in Montgomery, White, and Drew. And several varieties of excellent wild grapes are abundant in Johnson, Union, Benton, Drew, (which reports gooseberries and currants as not succeeding well,) and Jefferson. Cultivated sorts of grapes do not succeed well in Union, White, and Drew, as they are apt to mildew and rot. The want of enterprise and skill to raise fruit for market, and open facilities of transportation, alone prevent a number of counties from reaping profit from fruit cultivation.

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## HORSE-HOEING WHEAT.

With the improvement in farm machinery so advanced and progressive at the present time, it seems possible and practicable, notwithstanding the high price of labor, to try the experiment—if it need be called an experiment—of horse-hoeing our wheat. That it will increase the yield there is no doubt; and very little that it will improve the quality, destroy weeds, mitigate drought, promote

growth, hasten maturity, and resist or anticipate insect attacks. With red wheat at $1 50 in the bin, will it not pay to run a system of horse-hoes over level prairies, at the rate of several acres per day? Will not a saving of forty per cent. of the seed, by wide drilling to facilitate hoeing, pay a large portion of the expense? A half bushel per acre of seed saved, worth seventy-five cents to one dollar, with the right sort of an implement for cultivating, would pay every cent of the cost.

Too much seed is nsed in wheat culture. Scarcely less than twenty millions of acres will suffice for the wheat area of the United States, requiring nearly thirty millions of bushels of seed, and little more than ten bushels per acre are produced. Ten millions of bushels of this seed, worth perhaps sixteen millions of dollars, might be saved to the country, sold for bread, and the proceeds applied to the *cultivation* of growing wheat, with a fair probability of obtaining by such means more than twenty additional millions of bushels for the bread of the nation. So large a portion of this seed is now wasted by sowing at irregular intervals and at unequal depths, and so much is choked by weeds, that farmers say they cannot use a less quantity; but with universal drilling, at a width sufficient to allow the tillering and growth which would result from hoeing or cultivating, two-thirds of the present supply would be more than ample.

Is not a severe reflection upon the judgment and skill of wheat-growers furnished by the fact that ninety-nine of a hundred of them "run out" their seed in a few years, and depend upon the special culture and superior judgment of the remaining one to furnish them with improved seed at $4 or $5 per bushel?

About one bushel in every seven produced in the United States is saved for seed, when the requirement should be no more than one for every twenty. Thus millions of bushels are wasted, buried in the earth with no prospect of resurrection, and sacrificed to ignorance and thriftlessness. It is taking the children's bread, without the poor satisfaction of having fed a dog with it.

Such waste may be avoided. Thin seeding is impracticable with poor culture, though the result varies little whether it is thick or thin; it is not only practicable, but necessary, in connection with deep ploughing, thorough tillage, and hoeing for the purpose of killing weeds, admitting air, and retaining moisture about the roots of the plant.

Abundant evidence of the value of horse-hoeing can be furnished, not only from Europe, where no progressive farmer thinks of omitting it, but in this country. A correspondent of this Department, in North Carolina, last year drilled one pound nine ounces of Tappahannock wheat, at intervals of eighteen inches, and cultivated between the drills; the result was 186 pounds of wheat, or about one hundred and twenty to one, instead of seven to one, our average product of late. R. A. Gilpin, of West Chester, Pennsylvania, in 1866, drilled one acre, at intervals of twenty inches, and the remainder of the field at ten inches, and obtained nine bushels per acre from the narrow drilling without hoeing, and *twenty-three* bushels from the wide drilling with once cultivating with a one-horse hoe-harrow. Thus a single hoeing produced fourteen bushels of wheat, worth $30, besides saving one-half of the seed in drilling. A fact in cotton growing, just received, illustrates the value of thorough cultivation, whether applied to wheat or cotton production: *Four bales* of cotton were last year grown upon a single acre, by the use of the spade and hoe alone. Our farmers may freely acknowledge the advantage of cultivating wheat, but still insist that it will not pay, and continue to incur the loss of half to two-thirds of their crop and all of their profits as the penalty of neglect.

When Ohio, as in 1866, gathered but three bushels of seed for every bushel sown, the French inquiry is suggested again: "What advantage can be gained from sowing three hectolitres of seed in order to gain six or ten?" and "Would it not be better to bestow upon one hectare the manure and labor we should have

spent upon two?" The crowding of wheat originated the English saying: "The worst weed for the corn is *corn*." Who can doubt, in view of the recent splendid success of inventors in originating horse-cultivators and improving wheat drills, "that sowing in rows with a machine which does not put two grains where there ought to be only one, nor leave only two where there ought to be four, is a true progress, and a great step towards amelioration based upon reasonable practice?"

It is a false theory that the practice of any community is the outgrowth of the average common sense of that community, and therefore right under the circumstances. It is a truth that people do not do as well as they know, and that they are apt to follow traditions from generation to generation, and especially to fall into careless, easy, and slovenly habits. The practice here recommended is not a novelty, even in this country, and in England, more than a century ago, in Thomas Hale's "Complete Body of Husbandry," it is said: "We see drill and horse-hoeing husbandry produce larger crops in the same piece of ground than the common, and at less expense; and this advantage arises from the breaking and dividing of the ground in the intervals with the hoe-plough."

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## AGRICULTURE IN COMMON SCHOOLS.

The future is auspicious with evidences of a widely-spreading interest in industrial education. Colleges are everywhere springing up, and the right men will eventually be found to fill professorships, and great good will finally result, while comparative successes will, for many years, be mingled with failures, in the numerous experiments growing out of these great educational enterprises. But the facilities to be furnished by these schools will never reach, directly, the great mass of the children in common public schools. Would it not be well to introduce into every district school in the country some primary works, inculcating elementary principles of science, in their application to the practice of agriculture? An interest in agricultural education would thus arise among the youth in common public schools, from whose ranks our new industrial colleges would be filled. A series of such manuals, of foreign origin, have been submitted to several officials and men of science, by Mr. Joseph L. Smith, for a recommendation of the introduction of such means of instruction into the elementary schools of the land. They involve the principles of agricultural geology, chemistry, farm accounts, farm practice, and domestic economy, and are written by Johnston, Stephens, Hodges, Campbell, Pringle, and others well known to science and to practical agriculture. The importance of the subject has been indorsed by Professor Henry, General Howard, the Commissioner of Indian Affairs, (Hon. N. G. Taylor,) and officers of the Department of Agriculture, and others.

There is a want in this direction that should soon be supplied by American writers. The peculiar circumstances of American agriculture render necessary works expressly prepared to meet such conditions. Who is able to prepare one or more such manuals, in a manner worthy of the subject and of this progressive era? He who could worthily accomplish it would be a great public benefactor. There are good farmers who know little of science, and men of science with less knowledge of agriculture; but it is difficult to find a thoroughly scientific writer who is, also, thoroughly acquainted with agricultural practice, and is thus able to apply correctly the principles of abstract science to the processes of agriculture. A clear thinker, and lucid writer, who could thus unite truth with action, and marry thought to labor, would be worthy of higher honors than the greatest savans of the time.

## CASTOR-OIL BEAN.

Intimations of a revival of interest in the production of the *Ricinus communis* (or *Palma Christi*) have been received from the southwest particularly, with assurances of its attempted culture as a field crop. Mississippi, Louisiana, Arkansas, and Texas are peculiarly adapted, in soil and climate, to its profitable culture; and many persons in the southwest propose to engage in the business this spring.

In Illinois and St. Louis, where a successful farm product has been made of it, the following varieties are grown: *Ricinus communis*, early, four feet in height; *R. Spectabilis*, dark green leaves, five feet; *R. Sanguineus*, fruit red, in clusters, stalks dark red, seven feet; *R. Lividus*, stems brilliant red, fruit green, five feet; *R. Leucocarpus*, dwarf, three feet, white fruit, an African variety; *R. Brasiliensis*, brownish yellow fruit, five feet high.

In South Carolina it was reported, years ago, growing twelve feet high; in the vicinity of Vicksburg, Mississippi, it has been made a very profitable crop; in Texas it produces plants of great size and height. From thirty to one hundred bushels of beans per acre have been obtained in different locations, and two gallons of oil, or twenty-five per cent., obtained per bushel if the seeds are good; but twenty to twenty-five bushels are an average yield in Illinois and Missouri. The *R. Lividus* is a native of the Cape of Good Hope, and will thrive in a variety of soils of different elevations. In the tropics it is planted singly, ten or twelve feet apart. In poorer soils or more northern localities, a less distance would do. In its native clime the plant bears the first season, grows continuously for four years, and continues to yield for many seasons. The seeds are gathered when the pods begin to turn brown.

It is a common crop in all parts of India. The oil is there extracted by boiling in water and skimming off the oil—a very crude and wasteful mode, and the oil thus obtained is used exclusively for burning.

St. Louis has heretofore been the centre of production in this country, and the principal place of manufacture. The culture required is very much like that given to corn, and the soil should be the best of corn land; the planting should be done with the first warming of the soil, after danger from frosts is over; the hills should be five or six feet apart, and even seven or eight if the soil is sufficiently rich to make the requisite growth; the distance should be greater in the south than in more northern locations. As with corn or anything else, thorough culture pays best. The receipts at St. Louis last year are estimated at 50,000 bushels. The Prairie Farmer says, concerning prices and profits:

The market price is variable. During the past winter the beans in the St. Louis market have ranged from $3 90 to $1 25 per bushel. As the cost of growing does not differ materially from that of corn, the approximate profits can be calculated. At the present depressed condition of the market, an acre of beans would yield about $25, leaving but little margin for profit. The oil is quoted at $2 10 to $2 25 per gallon. As the yield of oil is about sixty-eight gallons per acre, the manufactured oil would amount to about $150 per acre. This gives four dollars to the manufacturer and one dollar to the producer—a division which cannot be regarded as equitable.

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## MANURES AND HOW TO APPLY THEM.

In an interesting discussion upon the above subject before the Bedford (N. H.) Farmers' Club, Mr. Josiah Clark, of Hooksett, claimed to have discovered a new process of chemicalizing manure, by the application of which large crops can be raised upon a small quantity of manure. He said he had been experimenting for the past seventeen years on different soils, and had satisfied himself from actual results that, at an expense of three dollars per acre, he can in-

troduce chemicals into five cords of manure that will produce larger crops than can be obtained from ten cords of crude manure, and last longer for future crops, saving at least fifty per cent. in labor and application. Dr. Wilkins thought that if five or six tons of hay could be produced, as promised by Mr. C. by chemical results, it would have a tendency to injure the soil, and illustrated his view by referring to the vineyards on the Rhine, which, when manured heavily, will, for one or two years, produce extraordinary crops of grapes, and then become fruitless, requiring more than twelve years to restore the soil so as to produce grapes again.

The chairman of the club said, in reference to the application of manure, that "after trying several ways, he prefers breaking up the sod early in the fall, ploughing not less than seven inches deep; in the spring drawing out the manure from the barn cellar after it had been forked over, placing it in heaps; making five heaps from a cart-body full, five paces apart each way, spreading it, and harrowing it under the depth of three inches. If to be planted in corn and potatoes, chain it both ways and drop the seeds on the square. Or, if to be sown for fodder, harrow in four bushels of oats to the acre and cut in the milk, which makes a superior feed for milch cows, nearly equal to herd's-grass. After the oat crop is harvested, plough the stubble under, across the furrows. The next spring harrow, haul from the barn cellar the same quantity of manure as applied to the first crop, about twenty-five loads to an acre, spread as before, and harrow or cultivate in to the depth of three inches, sow on three bushels of barley, eight pounds of clover and twelve quarts of grass-seed, harrow with a light harrow and roll; you will then get a good crop of barley, a good catch of grass, and a mowing field that will give you good crops, but do not fall-feed unless you want to spoil your mowing fields and be obliged to take them up in three years."

Mr. P. T. Campbell suggested the addition of two bushels of salt and three bushels of plaster per acre, immediately after the manure is spread, to be harrowed in at the same time, to keep the ammonia from escaping and to chemicalize the manures sufficiently for a successful crop.

Messrs. French, Manning, and Rollins thought leached ashes the best manure that can be applied to the soil, especially for fruit. The last named gentleman had doubled his crop of grass by the application of one hundred bushels per acre.

At the close of the discussion the club voted twenty to one that manure should be applied to the sod after it had been turned over, and as near the surface as it is possible to cover it, not over three inches in depth.

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## PUBLICATION OF THE REPORTS.

The dissemination of the reports of this department is tenaciously adhered to by Congressmen, acting for and at the direct and urgent request of their constituents, notwithstanding occasional expressions of dissent from persons engaged in publishing agricultural books. Recognizing the great utility of the distribution, and to some extent the reasonableness of a protest against issuing a mere agricultural compilation on general topics, the Commissioner has expressed his intention of restricting the acceptance of essays from outside sources and confining the matter mainly to the actual work of the department, thus making the annual volume in reality and exclusively a Report of the Department of Agriculture. No book publisher could then, on any pretext, object to their wide circulation, and all would concur with a correspondent—one of a multitude—who says: "They would increase the demand for such works by stimulating the appetite and awakening a desire for further investigation."

The Monthly Report cannot, in any sense, come under this protest, as it is ot sent to individual farmers, but to the agricultural, metropolitan, and local ress; to officers of agricultural societies; statistical reporters; meteorological bservers; industrial and technical societies in this country and in Europe; and riters for the press. The design is simply to furnish useful data, officially btained—much of it otherwise practically inaccessible—to the people, not irectly, but *through the press*. Its office is to enlarge and enrich, in an agricultural point of view, the current matter of such publications, and not to compete or interfere with any of them in the slightest degree. If this aim is properly understood there certainly cannot be found a publisher with views so narrow or prejudices so small as to make possible the least hostility or jealousy in the case.

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*Wool imported in first four months of present fiscal year—from July* 1, 1867, *to November* 1, 1867.

| Month. | Wool. | | Shoddy. | |
|---|---|---|---|---|
| | Pounds. | Value. | Pounds. | Value. |
| July | 2,798,275 | $496,157 | 50,237 | $5,339 |
| August | 1,342,015 | 226,573 | 108,232 | 10,389 |
| September | 2,193,490 | 281,418 | 5,490 | 2,105 |
| October | 3,077,146 | 474,805 | 127,696 | 4,288 |
| Total | 9,410,926 | 1,478,953 | 291,655 | 22,121 |

*Total amount of woollens imported in the period of four months as above.*

| Kinds. | Quantity. | Value. |
|---|---|---|
| Cloths and cassimeres | | $3,932,221 |
| Shawls | | 661,662 |
| Blankets | | 13,113 |
| Carpets | yards | 619,144 | 675,147 |
| Dress goods | yards | 26,218,478 | 8,233,514 |
| Manufactures not specified | | 3,669,648 |
| Total | | 17,185,305 |

# METEOROLOGY.

[Compiled in the Department of Agriculture, from the reports made by the observers for the Smithsonian Institution.]

## JANUARY, 1868.

*Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain and melted snow, (in inches and tenths,) for January, 1868, at the following places, as given by the observers named. Daily observations were made at the hours of 7 a. m. and 2 and 9 p. m.*

| Stations, &c. | Counties. | Observers. | Date. | Max. temp. | Date. | Min. temp. | Mean temp. | Rain and melt'd snow. |
|---|---|---|---|---|---|---|---|---|
| MAINE. | | | | ° | | ° | ° | *In.* |
| Steuben | Washington | J. D. Parker | 24 | 38 | 19 | — 8 | 15.8 | 4.93 |
| Williamsburg | Piscataquis | Edwin Pitman | 23 | 30 | 11 | —14 | 10.6 | 2.05 |
| West Waterville | Kennebec | B. F. Wilbur | 2, 24 | 38 | 19 | —11 | 16.1 | 2.27 |
| Gardiner | do | R. H. Gardiner | 24 | 40 | 19, 31 | — 3 | 17.6 | 2.86 |
| Lisbon | Androscoggin | Asa P. Moore | ..... | ..... | 31 | — 4 | ..... | 2.09 |
| Norway | Oxford | Howard D. Smith | 2, 8 | 38 | 11 | —18 | 14.9 | 2.00 |
| Cornish | York | Silas West | 2 | 38 | 12 | — 4 | 16.6 | 4.10 |
| Cornishville | do | G. W. Guptill | 2 | 35 | 12 | 0 | 17.8 | 4.13 |
| Averages | | | | | | | 15.6 | 3.05 |
| NEW HAMPSHIRE. | | | | | | | | |
| Stratford | Coos | Branch Brown | 23 | 32 | 13 | —15 | 12.7 | 2.30 |
| North Barnstead | Belknap | C. H. Pitman | 24 | 44 | 13 | 3 | 21.1 | 2.95 |
| Claremont | Sullivan | Arthur Chase | 2, 3 | 39 | 13 | — 9 | 18.0 | 2.65 |
| Shelburne | Coos | F. Odell | 13 | 38 | 12 | — 6 | ..... | 2.50 |
| Averages | | | | | | | 17.3 | 2.60 |
| VERMONT. | | | | | | | | |
| Lunenburg | Essex | H. A. Cutting | 2 | 33 | 13 | —16 | 12.7 | 1.88 |
| North Craftsbury | Orleans | Edward P. Wild | 3 | 37 | 14 | — 3 | 17.1 | 2.14 |
| Randolph | Orange | Charles S. Paine | 3 | 36 | 7 | —20 | 15.1 | 2.52 |
| Middlebury | Addison | H. A. Sheldon | 2 | 37 | 6 | —21 | 13.4 | 1.71 |
| St. Albans | Franklin | A. H. I. Gilman | 23 | 37 | 28 | —18 | 11.7 | 0.25 |
| Averages | | | | | | | 14.0 | 1.70 |
| MASSACHUSETTS. | | | | | | | | |
| Kingston | Plymouth | G. S. Newcomb | 3, 7, 23 | 42 | 10, 13 | 7 | 26.0 | 4.45 |
| Topsfield | Essex | S. A. Merriam | 2, 3 | 39 | 17 | 4 | 20.1 | 3.46 |
| Lawrence | do | John Fallon | 3 | 41 | 17 | 3 | 21.6 | 3.06 |
| Georgetown | do | S. A. Nelson | 3 | 44 | 17 | 5 | 22.6 | 2.41 |
| Newbury | do | John H. Caldwell | 3 | 40 | 12, 13, 17 | 4 | 21.7 | ..... |
| Milton | Norfolk | Rev. A. K. Teele | 3 | 45 | 13, 17 | 4 | 22.0 | 2.91 |
| Brookline | do | Rev. J. B. Perry | 25 | 45 | 6 | — 2 | 23.6 | ..... |

*Table showing the range of the thermometer, &c., for January*—Continued.

| Stations, &c. | Counties. | Observers. | Date. | Max. temp. | Date. | Min. temp. | Mean temp. | Rain and melt'd snow |
|---|---|---|---|---|---|---|---|---|
| MASS.—Continued. | | | | ° | | ° | ° | *In.* |
| North Billerica | Middlesex | Rev. E. Nason | 3 | 42 | 19 | — 1 | 21.0 | ..... |
| West Newton | ....do | John H. Bixby | 25 | 45 | 18 | 1 | 21.9 | 3.05 |
| New Bedford | Bristol | Samuel Rodman | 23 | 43 | 10, 13 | 8 | 25.4 | 5.91 |
| Worcester | Worcester | Jos. Draper, M. D | 23 | 39 | 13 | 4 | 21.4 | 3.27 |
| Hendon | ....do | Jno. G. Metcalf, M. D | 23 | 39 | 13 | 0 | 19.6 | ..... |
| Lunenburg | ....do | Geo. A. Cunningham | 8 | 43 | 12, 13 | 2 | 20.3 | 3.18 |
| Amherst | Hampshire | Prof. E. S. Snell | 3 | 40 | 13, 17 | 0 | 20.2 | 3.52 |
| Richmond | Berkshire | Wm. Bacon | 24 | 37 | 6, 10 | — 2 | 19.1 | 5.05 |
| Williams College | ....do | Prof. A. Hopkins | 23 | 39 | 28 | —10 | 19.3 | 2.42 |
| Averages | | | | | | | 21.6 | 3.56 |
| RHODE ISLAND. | | | | | | | | |
| Newport | Nowport | Wm. H. Crandall | 2, 3, 23 | 42 | 10 | 10 | 27.4 | 5.48 |
| CONNECTICUT. | | | | | | | | |
| Pomfret | Windham | Rev. D. Hunt | 23 | 39 | 10 | 1 | 20.7 | 2.02 |
| Middletown | Middlesex | Prof. John Johnston | 3 | 42 | 17 | 0 | 22.7 | 3.36 |
| Colebrook | Litchfield | Charlotte Rockwell | 7 | 38 | 10 | — 7 | 17.4 | ..... |
| Groton | New London | Rev. E. Dewhurst | 3 | 52 | 10, 17 | 4 | 23.6 | 2.90 |
| Averages | | | | | | | 21.1 | 2.76 |
| NEW YORK. | | | | | | | | |
| Moriches | Suffolk | E. A. Smith & daugh's | 3 | 50 | 31 | — 8 | 28.4 | 4.34 |
| South Hartford | Washington | G. M. Ingalsbe | 3 | 42 | 6 | —14 | 16.5 | 5.60 |
| Troy | Rensselaer | Jno. W. Heimstreet | 3 | 39 | 7, 28 | — 3 | 19.5 | 3.33 |
| Germantown | Columbia | Rev. S. W. Roe | 3 | 42 | 31 | 0 | 19.5 | 3.10 |
| Harrison's | Putnam | Thomas B. Arden | 3 | 43 | 10 | 6 | 23.0 | 3.41 |
| Throg's Neck | Westchester | Miss E. Morris | 2 | 42 | 10 | 6 | 25.3 | ..... |
| Deaf and Dumb Inst. | New York | Prof. O. W. Morris | 23 | 41 | 10 | 6 | 25.8 | 4.00 |
| Columbia College | ....do | Prof. Chas. A. Joy | 23 | 43 | 10 | 14 | 28.4 | 2.22 |
| Flatbush | King's | Eli T. Mack | 23 | 41 | 10 | 7 | 25.1 | 3.41 |
| Newburgh | Orange | James H. Gardiner | 4 | 48 | 10 | 3 | 23.0 | 3.27 |
| Minaville | Montgomery | Prof. D. S. Bussing | 23 | 32 | 7 | — 7 | 12.2 | 3.14 |
| Gouverneur | St. Lawrence | C. H. Russell | 23 | 42 | 28 | —22 | 12.7 | 2.00 |
| North Hammond | ....do | C. A. Wooster | 23 | 41 | 28 | —12 | 14.6 | 1.58 |
| South Trenton | Oneida | Storrs Barrows | 23 | 40 | 28 | — 6 | 16.0 | 3.30 |
| Cazenovia | Madison | Prof. Wm. Soule | 23 | 40 | 5 | — 2 | 18.6 | 4.45 |
| Oneida | ....do | S. Spooner, M. D | 23 | 44 | 6 | — 4 | 21.9 | 4.30 |
| Houseville | Lewis | Walter D. Yale | 23 | 40 | 12, 27 | — 7 | 15.9 | 2.57 |
| Depauville | Jefferson | Henry Haas | 23 | 38 | 28 | —12 | 15.9 | 3.35 |
| Theresa | ....do | S. Gregory | 23 | 35 | 29 | —21 | ..... | 2.06 |
| Oswego | Oswego | Wm. S. Malcolm | 3 | 39 | 28 | — 8 | 20.6 | 5.49 |
| Palermo | ....do | E. B. Bartlett | 23 | 39 | 28 | —23 | 16.2 | 4.50 |
| Nichols | Tioga | Robert Howell | 4, 23 | 44 | 30 | — 2 | 21.7 | ..... |
| Geneva | Ontario | Rev. Dr. W. D. Wilson | 23 | 42 | 28 | 0 | 20.9 | 1.92 |
| Rochester | Mouroe | Henry W. Mathews | 20 | 41 | 28 | 0 | 20.8 | 1.45 |
| Do | ....do | W. L. M. Fiske, M. D | 20 | 41 | 28 | 0 | 20.8 | 1.45 |
| Little Genesee | Allegany | Daniel Edwards | 23 | 42 | 28 | —12 | 19.4 | 2.00 |
| Buffalo | Erie | Wm. Ives | 23 | 37 | 28 | 1 | 20.9 | 2.23 |
| Averages | | | | | | | 20.1 | 3.14 |
| NEW JERSEY. | | | | | | | | |
| Paterson | Passaic | Wm. Brooks | 4 | 43 | 10 | 3 | 25.3 | 1.9 |

*Table showing the range of the thermometer, &c., for January*—Continued.

| Stations, &c. | Counties. | Observers. | Date. | Max. temp. | Date. | Min. temp. | Mean temp. | Rain and melted snow |
|---|---|---|---|---|---|---|---|---|
| NEW JERSEY—Con. | | | | ° | | ° | ° | *In* |
| Newark | Essex | W. A. Whitehead | 3 | 43 | 10 | 6 | 25.9 | 3.9 |
| New Brunswick | Middlesex | Geo. H. Cook | 23 | 44 | 31 | 6 | 25.1 | 2.7 |
| Trenton | Mercer | E. R. Cook | 2, 3, 4, 24 | 42 | 31 | 10 | 30.2 | 4.3 |
| Burlington | Burlington | John C. Deacon | 3 | 48 | 31 | 8 | 30.2 | 3.9 |
| Moorestown | ....do | Thos. J. Beans | 23 | 46 | 31 | 5 | 26.7 | 3.7 |
| Mount Holly | ....do | M. J. Rhees, M. D | 23 | 47 | 31 | 6 | 27.9 | ..... |
| Dover | Morris | Howard Shriver | 4 | 42 | 10 | 4 | 25.2 | 6.6 |
| Haddonfield | Camden | Samuel Wood | 23 | 45 | 31 | 8 | 27.9 | 3.3 |
| Newfield | Gloucester | E. D. Couch | 4 | 51 | 31 | 1 | 30.9 | ..... |
| Greenwich | Cumberland | R. C. Sheppard | 4 | 46 | 31 | 10 | 29.5 | 3.5 |
| Vineland | ....do | John Ingram, M. D | 4 | 46 | 31 | 3 | 26.6 | 4.4 |
| Averages | | | | | | | 27.6 | 3.6 |
| PENNSYLVANIA. | | | | | | | | |
| Nyces | Pike | John Grathwohl | 3 | 50 | 30 | — 8 | 20.6 | 2.6 |
| Fallsington | Bucks | Ehen'r Hance | 2 | 44 | 30 | 4 | 27.0 | 3.5 |
| Philadelphia | Philadelphia | Prof. J. A. Kirkpatrick | 4 | 45 | 9, 31 | 13 | 30.3 | 3.4 |
| Germantown | do | Thomas Meehan | 4 | 45 | 31 | 4 | 29.0 | ..... |
| Horsham | Montgomery | Miss Anna Spencer | 2 | 42 | 31 | 5 | 26.1 | 2.2 |
| Dyberry | Wayne | Theodore Day | 3, 4 | 38 | 11, 17 | — 8 | 17.6 | 3.1 |
| Whitehall | Lehigh | Edward Kohler | 3 | 42 | 10, 19 | 4 | 24.4 | 1.7 |
| Parkesville | Chester | F. Darlington | 4 | 44 | 31 | — 2 | 26.0 | 2.8 |
| Reading | Berks | J. Heyl Raser | 2 | 44 | 31 | 8 | 27.2 | ..... |
| Ephrata | Lancaster | W. H. Spera | 1, 2 | 48 | 16 | 4 | 27.5 | 1.2 |
| Harrisburg | Dauphin | John Heisely, M. D | 4 | 43 | 31 | 10 | 27.8 | 4.0 |
| Ickesburg | Perry | Wm. E. Baker | 3 | 50 | 9 | 3 | 24.3 | 4.0 |
| Lewisburg | Union | Prof. C. S. James | 3, 4 | 41 | 10, 31 | 2 | 21.3 | 2.5 |
| Pennsville | Clearfield | Elisha Fenton | 3, 23 | 40 | 9 | — 8 | 19.2 | 3.3 |
| Franklin | Venango | Rev. M. A. Tolman | 23 | 42 | 9, 13, 19 | — 1 | 20.4 | ..... |
| Connellsville | Fayette | John Taylor | 3, 23 | 47 | 13 | — 3 | 24.9 | ..... |
| Beaver Seminary | Beaver | Rev. R. T. Taylor | 23 | 45 | 9 | 8 | 27.0 | ..... |
| New Castle | Lawrence | E. M. McConnell | 23 | 43 | 9 | 4 | 24.3 | ..... |
| Averages | | | | | | | 24.7 | 2.90 |
| MARYLAND. | | | | | | | | |
| Woodlawn | Cecil | Jas. O. McCormick | 4 | 56 | 10 | 8 | 27.0 | 4.07 |
| St. Inigoes | St. Mary's | Rev. J. Stephenson | 4, 24, 27 | 48 | 31 | 10 | 31.3 | 4.55 |
| Emmittsburg | Frederick | Eli Smith | 1 | 50 | 9 | 8 | 27.3 | 2.72 |
| Mt. St. Mary's Coll | ....do | Prof. C. H. Jourdan | 3 | 44 | 9 | 6 | 26.3 | ..... |
| Averages | | | | | | | 28.0 | 3.78 |
| VIRGINIA. | | | | | | | | |
| Cape Charles L. H | Northampton | Mrs. Jean G. Potts | 4 | 59 | 18 | 19 | 33.3 | 1.11 |
| Surry C. H | Surry | B. W. Jones | 4 | 64 | 31 | 13 | 36.0 | ..... |
| Comorn | King George | E. Tayloe | ..... | ..... | 31 | — 4 | ..... | 1.17 |
| Lynchburg | Bedford | C. 1. Meriwether | 5 | 53 | 30 | 16 | 35.4 | ..... |
| Snowville | Pulaski | J. W. Stalmaker | 3 | 52 | 31 | — 8 | 28.9 | 1.68 |
| Averages | | | | | | | 33.4 | 4.65 |
| WEST VIRGINIA. | | | | | | | | |
| Romney | Hampshire | W. H. McDowell | 3, 4 | 56 | 13, 31 | 10 | 31.0 | ..... |
| Grafton | Taylor | W. H. Sharp, M. D | 1 | 65 | 12, 30 | 8 | 33.5 | 2.00 |
| Cabell C. H | Cabell | C. L. Roffe | 4, 23 | 58 | 30 | 10 | 33.2 | 4.90 |

*Table showing the range of the thermometer, &c, for January*—Continued.

| Stations, &c. | Counties. | Observers. | Date. | Max. temp. | Date. | Min. temp. | Mean temp. | Rain and melt'd snow. |
|---|---|---|---|---|---|---|---|---|
| | | | | ° | | ° | ° | *In.* |
| VIRGINIA—Con. | | | | | | | | |
| ning Springs | Wirt | Roh't H. Bliven | 3 | 67 | 30 | — 4 | 32.2 | ..... |
| ston | Lewis | Benjamin Owen | 4 | 60 | 12, 13 | 4 | 28.9 | ..... |
| Averages | | | | | | | 31.8 | 3.46 |
| RTH CAROLINA. | | | | | | | | |
| dsboro' | Wayne | E. W. Adams, A. M. | 4 | 70 | 18 | 17 | 40.2 | 3.20 |
| ford | Granville | Wm. R. Hicks, M. D. | 4 | 58 | 31 | 12 | 35.0 | 3.40 |
| leigh | Wake | Rev. F. P. Brewer | 4 | 62 | 18 | 12 | 35.9 | 4.20 |
| emarle | Stanley | F. J. Kron | 5 | 63 | 18, 31 | 8 | 36.1 | 6.80 |
| tesville | Iredell | Thos. A. Allison | 4 | 52 | 18 | 8 | 31.4 | 6.50 |
| heville | Buncombe | E. I. Aston | 3 | 61 | 31 | 3 | 33.5 | ..... |
| Averages | | | | | | | 35.4 | 4.82 |
| UTH CAROLINA. | | | | | | | | |
| ken | Barnwell | John H. Cornish | 3 | 75 | 31 | 22 | 34.5 | 2.00 |
| wdysville | Union | Charles Petty | 8 | 65 | 31 | 12 | 38.0 | ..... |
| Averages | | | | | | | 36.3 | 2.00 |
| GEORGIA. | | | | | | | | |
| lanta | Fulton | Chas. Deckner | 3, 7 | 72 | 30 | 6 | 37.0 | 4.01 |
| con | Bibb | Jno. A. Rockwell | 7 | 76 | 30 | 15 | 44.6 | 7.86 |
| Averages | | | | | | | 40.8 | 5.94 |
| ALABAMA. | | | | | | | | |
| oulton | Lawrence | Thos. M. Peters, A. M. | 3 | 70 | 30 | 14 | 38.2 | 5.65 |
| sh River | Baldwin | W. J. Van Kirk | 7 | 88 | 30, 31 | 21 | ..... | ..... |
| pelika | Lee | J. H. Shields | 3, 4, 7 | 78 | 30 | 12 | 44.2 | ..... |
| avana | Hale | Sam'l K. Jennings | 3 | 79 | 30, 31 | 17 | 43.1 | 11.23 |
| Averages | | | | | | | 41.8 | 8.44 |
| FLORIDA. | | | | | | | | |
| acksonville | Duval | A. S. Baldwin | 7 | 81 | 31 | 29 | 57.6 | 2.80 |
| ake City | Columbia | Galen M. Fisher | 3, 4 | 74 | 31 | 26 | 53.2 | ..... |
| Averages | | | | | | | 55.4 | 2.80 |
| TEXAS. | | | | | | | | |
| Waco | McLellan | Edw. Merrill, M. D. | 2 | 89 | 30 | 15 | 42.4 | 0.70 |
| ustin | Travis | J. Van Nostrand | 2 | 87 | 30 | 15 | 46.2 | 0.36 |
| louston | Harris | Miss E. Baxter | 5 | 84 | 30 | 19 | 52.0 | ..... |
| Averages | | | | | | | 46.9 | 0.53 |
| LOUISIANA. | | | | | | | | |
| New Orleans | Orleans | Robert W. Foster | 7 | 81 | 30 | 25 | ..... | ..... |
| MISSISSIPPI. | | | | | | | | |
| Grenada | Yalahusha | Albert Moore | 3, 4, 6 | 78 | 30 | 15 | 42.7 | ..... |
| Natchez | Adams | Wm. McCary | 3 | 75 | 30 | 18 | 46.6 | 8.16 |
| Averages | | | | | | | 44.7 | 8.16 |
| ARKANSAS. | | | | | | | | |
| Helena | Phillips | O. F. Russell | 3 | 74 | 29, 30 | 12 | 35.7 | ..... |
| TENNESSEE. | | | | | | | | |
| Tusculum College | Green | S. S. and Rev. W. S. Doak. | 7 | 57 | 30 | — 4 | 31.5 | ..... |
| Clarksville | Montgomery | Rev. C. F. P. Bancroft | 3 | 66 | 9, 29, 30 | 11 | 30.9 | 5.03 |
| Memphis | Shelby | Edw. Goldsmith | 3 | 68 | 30 | 13 | 33.0 | 5.30 |

*Table showing the range of the thermometer, &c., for January*—Continued.

| Stations, &c. | Counties. | Observers. | Date. | Max. temp. | Date. | Min. temp. | Mean temp. | Rain and melted snow |
|---|---|---|---|---|---|---|---|---|
| TENNESSEE—Con. | | | | ° | | ° | ° | *In.* |
| Austin | Wilson | P. B. Calhoun | 6 | 68 | 30 | 8 | 33.5 | 4. |
| Elizabethton | Carter | Charles H. Lewis | 7 | 56 | 31 | 5 | 33.1 | .... |
| Averages | | | | | | | 32.4 | 4. |
| KENTUCKY. | | | | | | | | |
| Chilesburg | Fayette | Sam'l D.Martin,M.D. | 3, 4, 5 | 54 | 30 | — 2 | 27.9 | 4. |
| Louisville | Jefferson | Mrs.L. Young | 4, 5 | 55 | 30 | 4 | 29.6 | 4. |
| Danville | Boyle | O. Beatty | 4, 5 | 60 | 30 | 1 | 32.6 | 3. |
| Averages | | | | | | | 30.0 | 4. |
| OHIO. | | | | | | | | |
| Steubenville | Jefferson | Joseph B. Doyle | 4 | 45 | 12 | 4 | 26.0 | ..... |
| Painesville | Lake | E. J. Ferris | 23 | 40 | 9, 10 | 2 | 20.6 | 3.4 |
| Milnersville | Guernsey | Rev. D. Thompson | 4 | 50 | 9, 13 | — 6 | 23.2 | 9.2 |
| Cleveland | Cuyahoga | Mr. & Mrs.G.A.Hyde | 23 | 44 | 27, 28 | — 4 | 21.5 | 1.4 |
| Do | ....do | T. A. Smurr, M. D. | 23 | 45 | 9, 10, 30 | 2 | 22.2 | ..... |
| Wooster | Wayne | Martin Winger | 4 | 50 | 22 | — 6 | 22.9 | ..... |
| Gallipolis | Gallia | Alex. P. Rodgers | 4 | 50 | 30 | 4 | 29.4 | 4.4 |
| Kelley's Island | Erie | Geo. C. Huntington | 20, 23 | 39 | 30 | 0 | 21.7 | 1.0 |
| Norwalk | Huron | Rev. A. Newton | 4 | 43 | 9, 30 | 0 | 21.9 | 0.9 |
| Greenwich Station | ....do | Mrs. M. M. Marsh | 4 | 44 | 9 | — 2 | 22.7 | 0.4 |
| North Fairfield | ....do | O. Burras | 23 | 45 | 30 | — 6 | 21.0 | 0.4 |
| Westerville | Franklin | Prof. Jno. Haywood | 23 | 46 | 30 | — 4 | 20.4 | 1.8 |
| Marion | Marion | H. A. True, M. D. | 4 | 44 | 30 | — 3 | 20.8 | 1.84 |
| Williamsport | Pickaway | John R. Wilkinson | 6 | 50 | 30 | — 2 | 27.1 | 6.45 |
| Toledo | Lucas | J. B. Trembly, M. D. | 6 | 40 | 9, 28 | — 1 | 21.0 | 1.25 |
| Bowling Green | Wood | John Clarke | 23 | 46 | 28 | —14 | 22.1 | 3.25 |
| Kenton | Hardin | C. H. Smith, M. D. | 4 | 59 | 30 | — 4 | 27.5 | 2.44 |
| Urbana University | Champaign | M. G. Williams | 4 | 48 | 30 | — 7 | 21.8 | 2.44 |
| Hillsboro' | Highland | J. McD. Mathews | 6 | 49 | 30 | — 4 | 24.2 | 4.10 |
| Bethel | Clermont | Geo. W. Crane | 6 | 50 | 30 | — 4 | 24.5 | 4.25 |
| Cincinnati | Hamilton | R. C. Phillips | 6 | 55 | 30 | — 8 | 31.3 | 7.29 |
| College Hill | ....do | John W. Hammitt | 6 | 52 | 30 | — 4 | 25.2 | 8.90 |
| Averages | | | | | | | 23.6 | 3.45 |
| MICHIGAN. | | | | | | | | |
| Monroe City | Monroe | Miss F. Whelpley | 23 | 40 | 27 | — 6 | 19.5 | 2.20 |
| Alpena | Alpena | J. W. Paxton | 3 | 37 | 12 | 3 | 20.9 | 1.15 |
| State Agricult'l Col. | Ingham | Prof. R. C. Kedzie | 2 | 38 | 28 | — 5 | 19.0 | 1.47 |
| Litchfield | Hillsdale | R. Bullard | 2, 23 | 35 | 28 | —14 | 16.4 | 2.34 |
| Northport | Leelanaw | Rev. Geo. N. Smith | 2, 3 | 34 | 26 | — 4 | 20.5 | 2.98 |
| Otsego | Allegan | Milton Chase, M.D. | 21 | 55 | 27 | — 8 | 23.1 | 2.00 |
| Holland | Ottawa | L. H. Streng | 2, 19 | 40 | 26 | — 1 | 23.4 | 5.24 |
| Central Mine | Keweenaw | Dr. S. H. Whittlesey | 2, 3, 5 | 31 | 11 | — 8 | 11.4 | 6.80 |
| Ontonagon | Ontonagon | Edwin Ellis, M. D. | 4, 5 | 34 | 7, 8 | —14 | 14.0 | ..... |
| Averages | | | | | | | 18.7 | 3.02 |
| INDIANA. | | | | | | | | |
| Richmond | Wayne | John Valentine | 4, 6 | 44 | 30 | — 5 | 21.2 | 2.57 |
| Aurora | Dearborn | Geo. Sutton, M. D. | 3, 4, 5, 6 | 50 | 30 | — 4 | 26.0 | 4.32 |
| Vevay | Switzerland | Chas. G. Boerner | 4 | 60 | 30 | 0 | 29.2 | 6.20 |
| Muncie | Delaware | G.W.H.Kemper,M.D | 4 | 46 | 30 | — 5 | 20.5 | 2.5 |

*Table showing the range of the thermometer, &c., for January*—Continued.

| Stations, &c. | Counties. | Observers. | Date. | Max. temp. | Date. | Min. temp. | Mean temp. | Rain and melt'd snow. |
|---|---|---|---|---|---|---|---|---|
| | | | | ° | | ° | ° | *In.* |
| INDIANA—Con. | | | | | | | | |
| Indianapolis | Marion | W. J. Elstun, M. D. | 4 | 48 | 30 | — 3 | 22.2 | 2.24 |
| Fort | Sullivan | Thomas Holmes | 4 | 59 | 29 | — 2 | 23.8 | 2.30 |
| New Harmony | Posey | John Chappellsmith | 3 | 58 | 29 | 5 | 27.9 | 3.60 |
| Averages | | | | | | | 24.4 | 3.39 |
| ILLINOIS. | | | | | | | | |
| Chicago | Cook | J. G. Langguth, jr. | 4 | 41 | 29 | — 7 | 19.8 | 1.28 |
| Near Chicago | ....do | Samuel Brookes | 4, 5 | 40 | 29 | —16 | 16.8 | ..... |
| Golconda | Pope | Wm. V. Eldredge | 3 | 66 | 30 | 4 | 27.8 | 2.20 |
| Aurora | Kane | A. & E. D. Spaulding | 2 | 44 | 29 | —11 | 14.4 | 0.98 |
| Sandwich | De Kalb | N. E. Ballou, M. D | 2 | 42 | 13, 28 | —14 | 14.0 | 0.85 |
| Ottawa | La Salle | Mrs. E. H. Merwin | 2 | 47 | 29 | — 6 | 16.6 | 1.07 |
| Winnebago | Winnebago | J. W. & Miss Tolman | 2 | 39 | 13 | —13 | 11.5 | 0.82 |
| Hennepin | Putnam | Smiley Sheppard | 5 | 46 | 29 | —10 | 17.7 | ..... |
| Magnolia | ....do | Heury K. Smith | 1, 5 | 46 | 29 | —13 | 18.6 | 1.70 |
| Rochelle | Ogle | Daniel Carey | 2 | 42 | 13 | —16 | 12.0 | ..... |
| Tyanet | Bureau | E. S. & Miss Phelps | 2 | 50 | 29 | —12 | 15.6 | 0.56 |
| Wiskilwa | ....do | Verry Aldrich | 5 | 44 | 29 | —10 | 17.2 | 0.45 |
| Almira | Stark | O. A. Blanchard | 2 | 49 | 29 | —13 | 16.3 | 0.34 |
| Peoria | Peoria | Frederick Brendel | 5 | 51 | 29 | —10 | 18.4 | 0.77 |
| Springfield | Sangamon | G. M. Brinkerhoff | 4 | 52 | 29 | — 9 | 18.6 | ..... |
| Waterloo | Monroe | H. Künster | 3 | 63 | 29 | — 2 | 26.2 | ..... |
| Dubois | Washington | Wm. C. Spencer | 4 | 56 | 29 | — 3 | 23.0 | 2.15 |
| Galesburg | Knox | Prof. W. Livingstou | 4 | 48 | 29, 30 | —10 | 16.4 | 0.30 |
| Mount Sterling | Brown | Rev. A. Duncan | 3, 5 | 54 | 29 | —10 | 19.4 | ..... |
| Andalusia | Rock Island | E. H. Bowman, M. D | 19 | 43 | 29 | — 8 | 15.0 | ..... |
| Augusta | Hancock | S. B. Mead, M. D. | 5 | 55 | 29 | —10 | 19.5 | 0.93 |
| Ridge Farm | Vermillion | Dr. B. C. Williams | 5 | 48 | 30 | —10 | 20.6 | ..... |
| Marengo | McHenry | O. P. Rogers | 1 | 43 | 13 | — 9 | 15.5 | 1.57 |
| Averages | | | | | | | 17.8 | 1.07 |
| WISCONSIN. | | | | | | | | |
| Manitowoc | Manitowoc | Jacob Lüps | 2, 5, 6 | 37 | 9, 13 | —12 | 15.9 | 1.64 |
| Plymouth | Sheboygan | G. Moeller | 5 | 38 | 12, 13 | —17 | 12.0 | 1.90 |
| Milwaukee | Milwaukee | I. A. Lapham, LL.D | 7 | 43 | 12 | — 9 | 16.4 | 1.29 |
| Waupacca | Waupacca | H. C. Mead | 4 | 38 | 12, 13 | —20 | 13.2 | ..... |
| Embarrass | ....do | E. Everett Breed | 4, 5, 6 | 32 | 13 | —19 | 12.4 | 3.20 |
| Edgerton | Rock | Henry J. Shintz | 4 | 44 | 16 | —14 | ..... | ..... |
| Baraboo | Sauk | M. C. Waite | 4 | 34 | 12, 13 | —20 | 9.7 | 3.31 |
| New Lisbon | Junean | J. L. Dungan | 2, 3, 4, 5, 22 | 34 | 12 | —33 | 9.6 | ..... |
| Rocky Run | Columbia | W. W. Curtis | 2 | 38 | 12 | —18 | 14.2 | 1.44 |
| Galesville University | Trempealean | Wm. Gale, A. B | 3 | 29 | 12 | —40 | 4.7 | 1.60 |
| Bayfield | Bayfield | Andrew Tate | 6 | 34 | 7, 8 | —22 | 9.1 | ..... |
| Averages | | | | | | | 11.7 | 2.05 |
| MINNESOTA. | | | | | | | | |
| St. Paul | Ramsey | Rev. A. B. Paterson | 5 | 31 | 12 | —39 | 4.5 | 1.71 |
| Minneapolis | Hennepin | Wm. Cheney | 3, 5 | 28 | 12 | —40 | 3.9 | 1.96 |
| Sibley | Sibley | C. W. and C. E. Woodbury. | 3 | 30 | 13 | —36 | 2.4 | 0.76 |
| New Ulm | Brown | Charles Roos | 1 | 34 | 12, 13 | —30 | 3.8 | 0.86 |
| Averages | | | | | | | 3.7 | 1.32 |

*Table showing the range of the thermometer, &c., for January*—Continued.

| Stations, &c. | Counties. | Observers. | Date. | Max. temp. | Date. | Min. temp. | Mean temp. | Rain and melted snow |
|---|---|---|---|---|---|---|---|---|
| IOWA. | | | | ° | | ° | ° | |
| Clinton | Clinton | Dr. P. J. Farnsworth | 5 | 40 | 16 | — 6 | 14.8 | 0. |
| Davenport | Scott | D. S. Sheldon | 5 | 44 | 29 | —12 | 13.2 | 0. |
| Dubuque | Dubuque | Asa Horr, M. D | 5 | 36 | 16 | —12 | 12.4 | 0. |
| Monticello | Jones | M. M. Moulton | 5 | 40 | 29 | —16 | 11.1 | 0. |
| Guttenberg | Clayton | Jas. P. Dickerson | 5 | 39 | 13 | —22 | 8.8 | 0. |
| Ceres | ....do | Jno. M. Hagensick | 5 | 36 | 13 | —15 | 12.8 | .... |
| Mount Vernon | Linn | Prof. A. Collins | 5 | 40 | 29 | —15 | 11.5 | .... |
| Iowa City | Johnson | Prof. Theo. S. Parvin | 5 | 40 | 29 | —16 | 13.4 | 0. |
| Independence | Buchanan | Geo. Warne, M. D | 3, 5 | 38 | 29 | —18 | 9.7 | 1. |
| Near Independence | ....do | Mrs. D. B. Wheaton | 3 | 39 | 13 | —22 | 5.9 | 0. |
| Waterloo | Black Hawk | T. Steed | 5 | 40 | 16, 29 | —15 | 11.0 | .... |
| Marble Rock | Floyd | H. Wadey | 3, 5 | 36 | 13 | —20 | 7.9 | 1. |
| Iowa Falls | Hardin | N. Townsend | 3 | 40 | 29 | —16 | 7.7 | 1. |
| Algona | Kossuth | Ph. Dorweiler | 3 | 35 | 29 | —20 | 5.1 | 0. |
| Do | ....do | James H. Warren | 1 | 33 | 29 | —19 | 5.9 | 0. |
| Dacotah | Humboldt | Wm. O. Atkinson | 3 | 40 | 29 | —20 | 7.4 | .... |
| Boonesboro' | Boono | E. Babcock | 4 | 37 | 29 | —18 | 8.1 | 0. |
| Fontanelle | Adair | A. F. Bryant | 4 | 48 | 29 | —18 | 11.7 | 0. |
| Logan | Harrison | Jacob F. Stern | 4 | 48 | 29 | —16 | 14.3 | 0. |
| Whitesboro' | ....do | David R. Witter | 1 | 44 | 29 | —20 | 9.1 | 0. |
| Fort Dodge | Webster | C. N. Jorgensen | 3 | 37 | 29 | —15 | 9.7 | 0. |
| Muscatine | Muscatine | J. P. Walton | 5 | 47 | 29 | —12 | 13.6 | 0. |
| Rolfo | Pocohontas | Oscar I. Strong | 3 | 45 | 29 | —26 | 8.5 | 2 |
| Averages | | | | | | | 10.2 | 0. |
| MISSOURI. | | | | | | | | |
| St. Louis University | St. Louis | Rev. F. H. Stuntebeck | 3 | 61 | 17, 29 | 5 | 26.2 | 1. |
| Allenton | ....do | A. Fendler | 3 | 67 | 29 | — 2 | 24.2 | 1. |
| Hermitage | Hickory | Miss Belle Moore | 2 | 60 | 21 | — 5 | 23.5 | 0. |
| Rolla | Phelps | Homer Ruggles | 4 | 67 | 29 | 0 | 26.3 | 1. |
| Harrisonville | Cass | John Christian | 4 | 60 | 29 | — 8 | 21.1 | 0. |
| Oregon | Holt | Wm. Kancher | 4 | 62 | 29 | —12 | 17.4 | 1. |
| Canton | Lewis | Geo. P. Ray | 5 | 56 | 29 | —10 | 18.1 | 0. |
| Averages | | | | | | | 22.4 | 1. |
| KANSAS. | | | | | | | | |
| Leavenworth | Leavenworth | Dr. J. Stayman | 2 | 65 | 17, 29 | —10 | 18.3 | 0. |
| Olathe | Johnson | Wm. Beckwith | 2 | 57 | 29 | —10 | 16.0 | 0. |
| Atchison | Atchison | Dr. H. B. & Miss Horn | 4 | 60 | 17 | —11 | 17.1 | 0. |
| Holton | Jackson | Dr. James Walters | 4 | 58 | 29 | —11 | 18.3 | 0. |
| State Agricult'l Coll. | Riley | Prof. B. F. Mudge | 2 | 61 | 29 | —12 | 18.5 | 0. |
| Council Grove | Morris | A. Woodworth, M.D. | 2 | 60 | 29 | —10 | 21.0 | 0. |
| Baxter Springs | Cherokee | Ingraham & Hyland | 5 | 64 | 29 | — 2 | 24.6 | 0. |
| Averages | | | | | | | 19.1 | 0. |
| NEBRASKA. | | | | | | | | |
| Elkhorn | Washington | John S. Bowen | 1 | 45 | 29 | —15 | 11.7 | .... |
| De Soto | ....do | Charles Seltz | 1 | 43 | 29 | —19 | 11.5 | 0. |
| Glendale | Cass | Dr. A. L. & Miss Child | 4 | 52 | 16 | —26 | 11.1 | 0. |
| Dakota | Dakota | H. H. Brown | 1 | 50 | 27, 29 | —18 | 10.8 | 0. |
| Omaha Agency | (Reserve) | Rev. Wm. Hamilton | 1, 3 | 49 | 29 | —12 | 14.8 | 0. |
| Averages | | | | | | | 12.0 | 0. |

*Table showing the range of the thermometer, &c., for January*—Continued.

| Stations, &c. | Counties. | Observers. | Date. | Max. temp. | Date. | Min. temp. | Mean temp. | Rain and melt'd snow. |
|---|---|---|---|---|---|---|---|---|
| UTAH TER. | | | | ° | | ° | ° | *In.* |
| eat Salt Lake City | Great Salt Lake | W. W. Phelps | 1 | 50 | 18 | 1 | 24.3 | 2.44 |
| anship | Summit | Thomas Bullock | 26 | 44 | 16 | —18 | 14.1 | 1.45 |
| Averages | | | | | | | 19.2 | 1.95 |
| CALIFORNIA. | | | | | | | | |
| onterey | Monterey | C. A. Canfield, M. D. | 1 | 64 | 8 | 31 | 47.1 | 7.65 |
| ntioch | Contra Costa | F. M. Rogers | 1 | 58 | 8 | 31 | 43.3 | 7.54 |
| Averages | | | | | | | 45.2 | 7.60 |
| OREGON. | | | | | | | | |
| orvallis | Benton | A. D. Barnard | 2 | 46 | 11, 29 | 0 | 22.9 | |
| MONTANA. | | | | | | | | |
| elena | Edgerton | A. C. Wheaton | 1 | 36 | 9 | 28 | 2.7 | 1.00 |

## NOTES OF THE WEATHER—JANUARY, 1868.

[Compiled in the Department of Agriculture from the reports of observers for the Smithsonian Institution.]

*Steuben, Maine.*—The coldest January, except two, on my record.

*Gardiner, Maine.*—The month colder by 0°.7 than the January average of thirty-two years; ground frozen forty-two inches deep.

*Cornish, Maine.*—Average temperature for the month 0°.79 above that for thirty-five years; depth of snow fall for the month forty-three inches.

*Stratford, New Hampshire.*—Thermometer not above 32° the whole month; snow twenty-seven inches deep on the level.

*Claremont, New Hampshire.*—A cold month, without a severe blow or thaw.

*Lunenburg, Vermont.*—Sleighing excellent all the month; springs and streams the lowest known for many winters, some apparently frozen dry; ice on ponds and rivers two feet thick, very clear and solid.

*Randolph, Vermont.*—About three feet of snow fell during the month, and is now twenty-two inches deep on open plains, deeper in woods; no extreme cold, neither much thawing.

*Kingston, Massachusetts.*—A cold, stormy month; snow fell on twelve days.

*Topsfield, Massachusetts.*—Ice twenty-two inches thick, superior quality on 1st; the month closes cold with twenty-two inches of snow, and ground frozen eighteen inches deep.

*Georgetown, Massachusetts.*—A month of no extreme in temperature, but steady cold made it severe; no storms, only one rain, and lack of water in wells and streams.

*North Billerica, Massachusetts.*—Snow about twelve inches deep on 31st; splendid sleighing.

*New Bedford, Massachusetts.*—Sleighing unusually prolonged for this locality.

*Richmond, Massachusetts.*—A violent gale all day, with rain and hail, on the 1st; on the 12th, p. m., tempest from northwest; sleighing unusually good through the month.

*Newport, Rhode Island.*—Snow and rain on the 4th, 20th, 28th and 29th, and snow on the 8th.

*South Hartford, N. Y.*—Month colder than for many years; sleighing good throughout; snow 18 inches on a level; ground frozen 30 inches. That portion of Lake Champlain known as "Broad Lake" has been frozen over before the 15th of January but thrice in fifty-two years, viz., January 10, 1835, January 11, 1859, and January 7, 1868. It has been entirely open all winter but five times since 1800, viz., 1808–'09, 1826–'27, 1833–'34, 1841–'42, and 1849–'50. March 4, 1819, is the latest date of closing in fifty-two years. The earliest opening of navigation was March 1, 1851; and the latest, April 30, 1847.

*Garrison's, N. Y.*—Month more than usually dry and cold.

*Columbia College, New York city.*—The month very cold, especially the first half.

*Depauville, N. Y.*—Snow much drifted this month, but about 12 inches deep on a level. Wells and streams low; ground frozen hard under the snow.

*Palermo, N. Y.*—Many snow storms during the month—45.25 inches fell, in all.

*Nichols, N. Y.*—On 21st hardest snow storm in many years; more snow fell in a given time, in all about 15 inches in 14 hours. Susquehanna closed with ice since the 10th.

*Little Genesee, N. Y.*—An unusual month; no rain in measurable quantity; only one day of thaw; good sleighing all the time, and streams low, and many springs and wells dry.

*Buffalo, N. Y.*—Mean temperature of the month 7° below the Januarys of ten years past. Lake Erie closed on the 9th. Good sleighing all the month.

*Newark, N. J.*—A large proportion of fair weather this month, with snow and me rain distributed between.

*Dover, N. J.*—The month much warmer than in 1867.

*Greenwich, N. J.*—Month uniformly cold, yet the average nearly 6° above at of last year. From 25th to 30th the sun did not shine five minutes.

*Fallsington, Penn.*—Delaware river closed on 1st, the second time; opened on h; closed third time on 10th. The month has been 3° colder than the ave-ge here.

*Dyberry, Penn.*—Snow fall during the month 31 inches—is 2 to 3 feet deep the woods.

*Franklin, Penn.*—Snow fall this month 20.7 inches—now 20 inches deep on ie ground.

*New Castle, Penn.*—Temperature of the month uniformly low, without reach-ig an extreme. About 18 inches of snow fell. Wells still dry.

*Woodlawn, Md.*—Susquehanna closed the second time on 10th.

*Comorn, Va.*—First week of the month wet and mild; the remainder very old, with much snow—all very unfavorable for farm work. The Rappahannock vas frozen over several times.

*Snowville, Va.*—New river frozen over on 11th; open on 24th; frozen over gain on 30th.

*Albemarle, N. C.*—December snows nearly gone on 3d. The month unfa-orable for farm work—ground either too wet, or frozen hard.

*Statesville, N. C.*—December snows nearly gone on 8th.

*Atlanta, Ga.*—Lightning and thunder in northwest at 3 a. m. on 8th. Thunder n northwest at 9 a. m., and lightning without thunder in southeast at 10.30 p. m. n 20th. Coldest morning on 30th since February 14, 1866.

*Moulton, Ala.*—Ground frozen 4 inches deep, and ice thick enough for skating n 30th. The whole month wet and cold—but one perfectly fair day.

*Opelika, Ala.*—The first snow this season on 29th; fell rapidly for four ours. 31st, some snow left on northern exposures.

*Gordon, Ala.*—On 20th disagreeably warm; severe storm from southwest at ight, with high wind, vivid lightning, and heavy thunder—twenty-four distinct eals were counted. On 24th unusually warm, with copious showers, thunder nd lightning from east. Thunder showers on 27th, 28th, and 29th, followed y severe frost on night of 29th. Plum trees in full bloom.

*New Orleans, La.*—1st, ice one-eighth of an inch thick. 2d, soft, warm norning—peaches size of hazel nuts. 3d, mosquitoes troublesome. 6th, air lear and sultry—unseasonable weather. 10th, sleet—no frost—dull, wintry veather. 14th, strawberry vines in blossom; many fig-trees in favorable loca-ions have ripened their fruit. 17th, cold, damp, wintry weather. 21st, delight-ul spring morning. 25th, hoar frost. 31st, ice quarter of an inch thick.

*Houston, Texas.*—21st, white frost. 28th, hail and rain, with lightning and hunder.

*Grenada, Miss.*—Heavy white frosts on 15th, 18th, 22d, 24th, 25th, and 31st. Copious rains, accompanied with heavy thunder, on 19th and 22d.

*Natchez, Miss.*—On 28th, at 10 a. m., sprinkling; at 12.50 p. m., sleet; at 1.30 p. m., distant thunder in southwest; at 1.45 p.m., thunder peal overheard; 2.25 p.m., snow till 9 or 10 p. m. Two inches of snow on the ground on 29th. Extremely cold and clear on 30th.

*Memphis, Tenn.*—Month noted for continued cold; mean temperature 4° 06′ lower than in 1867, and 8° 16′ lower than in 1866.

*Chilesburg, Ky.*—The year commenced with rain, hail, and snow. On 6th, violent thunder storm and strong wind from south and southeast. On 11th, ice was 3 inches thick on streams; on 13th, 4½ inches thick. More or less snow fell on 1st, 8th, 9th, 14th, 16th, 17th, 20th, 21st, and 27th.

*Salem, Ky.*—20th.—Thunder and rain on the 6th, and cold ever since, wit abundance of sleet on the ground.

*Norwalk, Ohio.*—The month was steadily cold, though the average is abov January of last year. Wells continue dry.

*North Fairfield, Ohio.*—Month steadily cold; good roads, with but littl sleighing.

*Williamsport, Ohio.*—Uncovered ground frozen 25 inches—under snow inches deep it is frozen only 15 inches.

*Toledo, Ohio*—The drought continues. The month has been steadily colc

*Bowling Green, Ohio.*—Remarkably cold month; no severe storms, nc wholly clear days; six snow-storms; in all 15.5 inches fell.

*Bethel, Ohio.*—On 6th, distant thunder in southwest, at 6 and 11 a. m.

*Alpena, Mich.*—Lake covered with drifting ice on the 8th.

*Litchfield, Mich.*—The monthly mean nearly a degree higher than last year snow eleven inches in woods, but very dry and loose. Springs remain low.

*Northport, Mich.*—January, on the whole, has been of even temperature an agreeable.

*Richmond, Ind.*—4th, west wind, but day remarkably clear and warm. 17th coldest morning this winter. 30th, still colder.

*Aurora, Ind.*—Thunder-storm on 6th, at 3 a. m., with diffused lightning atmosphere foggy; rain all day. 20th to 21st, snow-storm; 7.75 inches fell.

*Vevay, Ind.*—On 6th, heavy rain, with thunder, from west, at 2.30 a. m. Or 20th, violent snow-storm from northwest; snow wet and heavy; broke dowr limbs of many trees. 31st, Ohio river running heavy ice since 27th; naviga tion dangerous and nearly stopped.

*Aurora, Ill.*—Coldest steady weather known here in twenty years; farmers still inconvenienced in watering stock.

*Hennepin, Ill.*—Month regular, free from storms and sudden and extreme changes, and, except scarcity of water in some places, pleasant and healthy for man and beast.

*Tiskilwa, Ill.*—Steadily cold and dry month; cisterns and wells nearly all dry; snow about two inches deep, but sleighing good since 14th.

*Waterloo, Ill.*—A heavy thunder-storm, with rain from northwest to south east, on night of 5th and 6th.

*Mt. Sterling, Ill.*—Frost out of ground, and farmers ploughing on 3d; thun der-storm from southeast, with considerable hail and vivid lightning about 4 p. m. on 5th in the evening; lightning visible in northwest horizon. On 6th, thunder-storm, with hail and sleet from southwest, at 6 to 7 a m.

*Augusta, Ill.*—Thunder-storm of sleet and snow at 6 to 6.30 a. m., on 6th.

*Plymouth, Wis.*—Unusually steady, but not severe cold weather, with just snow enough to make good sleighing.

*Waupacca, Wis.*—Good sleighing all the month; no drifting of snow.

*Edgerton, Wis*—Very cold month, with little rain or snow.

*Baraboo, Wis.*—Month remarkable only for continued mild weather for this high northern latitude. Continuous good sleighing all the month.

*St. Paul, Minn*—The coldest January for twelve years.

*Sibley, Minn.*—The coldest January since I kept record.

*Clinton, Iowa.*—A uniformly cold month, without much rain or snow; wells drying up; ice in river twelve inches; ground frozen eighteen inches.

*Monticello, Iowa.*—Very pleasant month; no rain or mud; little severe cold, but for last three months very dry. In this city not one well in twenty has a full supply of water.

*Muscatine, Iowa.*—The coldest and dryest January for many years.

*Marble Rock, Iowa.*—Finest sleighing this winter I ever saw; just snow enough to keep you from the ground.

*Algona, Iowa.*—The month one of the finest for winter business in many ears; remarkable for steady cold, but not so low a degree was reached as usual.

*Hermitage, Mo.*—Since the 5th, the month has been steadily cold, without ind, rain, or snow.

*Atchison, Kansas.*—Missouri river closed on the 7th, and since the 9th teams ross on the ice.

*Holton, Kansas.*—No rain this month; ground very dry; streams frozen up nd water very scarce; hard weather on what grain escaped the grasshoppers.

*Manhattan, Kansas.*—The Kansas and Blue rivers froze over for the first ime this winter, on 5th and 6th.

*Baxter Springs, Kansas.*—Ground commenced freezing on 6th; now (31st) rozen four inches, and ice on ponds seven inches thick.

*Omaha Agency, Neb.*—Steadily cold month; sledding generally good; ground n the north side of a hill frozen five feet deep.

*Great Salt Lake City, Utah.*—Rain and snow on 1st; snow 3d, 4th, 7th, 1th, 14th, and 21st; hoar frost on 27th, 28th, 30th, and 31st.

*Wanship, Utah.*—Snow on 1st, 2d, 4th, and 25th; thunder on 2d.